# Research Project for a Review of Mobile Phone Operators Permitted Development Rights

Llywodraeth Cynulliad Cymru
Welsh Assembly Government

# Research Project for a Review of Mobile Phone Operators Permitted Development Rights

# The Wales Planning Policy Development Programme

# The Wales Planning Policy Development Programme

This research project has been commissioned and undertaken as part of the Welsh Assembly Government's Wales Planning Policy Development Programme. The programme, originally established in 2000 under the title the Wales Planning Research Programme, is intended to meet the need for evidence based land use planning policy development within the context of the Welsh Assembly Government's principles and priorities.

The Assembly Government's Planning Division is responsible for administering the Wales Planning Policy Development Programme and ensuring that any research or policy implementation work meets the needs of the Welsh Assembly Government.

Research is carried out predominantly by external commission, although some projects are undertaken collaboratively with other organisations

## Research Project for a Review of Mobile Phone Operators Permitted Development Rights

## Key Objectives

- To focus on distinctive Welsh issues
- To support the development of planning policy
- To provide management information for land use planning policy development
- To develop best practice guidance.

In 2005 a quinquennial review of the research programme was carried out. This identified a number of recommendations including the renaming of the programme to enable not only the funding of planning research but the implementation of policy developed from it.

Further information on the Wales Planning Policy Development Programme can be accessed at:
**www.wales.gov.uk/planning**

Enquires on the programme should be addressed to
Jonathan Fudge,
Senior Planning Manager,
Planning Policy Branch,
Planning Division,
Cathays Park,
Cardiff,
CF10 3NQ.

Telephone: 029 2082 6961

Fax: 029 2082 5622

E-mail: Planning.Division@wales.gsi.gov.uk

D6890809


University of the
West of England

# RESEARCH PROJECT FOR A REVIEW OF MOBILE PHONE OPERATORS PERMITTED DEVELOPMENT RIGHTS

## CONTRACT NUMBER 144/2007/08

**Final Report to the Welsh Assembly Government**

**by**
**The University of the West of England, Bristol, UK**
**Janet Askew**
**Adam Sheppard**
**Alice Dalton**
**Nigel Baker**
**Tom Appleby**
**and**
**Deborah Peel of the University of Ulster**

**November 2008**

# RESEARCH PROJECT FOR A REVIEW OF MOBILE PHONE OPERATORS PERMITTED DEVELOPMENT RIGHTS

**CONTRACT NUMBER 144/2007/08**

**Submitted to the Welsh Assembly Government**
**by the University of the West of England, Bristol, UK**

*For any queries or correspondence regarding the substantive content of the proposal please contact the UWE Project Manager*

**Janet Askew**
Head of the Department of Planning and Architecture
Faculty of Environment and Technology
University of the West of England, Bristol
UK-BRISTOL BS16 1QY
tel: +44 (0) 117 32 83204
fax: +44 (0) 117 32 83899
Janet.Askew@uwe.ac.uk

*For any queries or correspondence regarding contract or intellectual property issues relating to the proposal, please contact*

Professor Stephen Hagen, Director
Research, Business and Innovation
University of the West of England, Bristol
Frenchay Campus
Coldharbour Lane
UK-Bristol BS16 1QY
Tel: +44 (0) 117 32 82835
Fax: +44 (0) 117 32 82688

## EXECUTIVE SUMMARY

A research team from the University of the West of England, Bristol and the University of Ulster was commissioned by the Welsh Assembly Government to review mobile phone operators permitted development rights as regulated by Part 24 of the Town and Country Planning (General Permitted Development) Order 1995 (as amended). The research involved an in-depth investigation of the literature and previous research on the subject in the UK, and interviews with stakeholders from the industry, local planning authorities, business and community groups. Following this, various options were tested for their impact on technical, economic, safety, environmental, legal and social issues. The research culminated in a focus group discussion involving representatives from all sectors engaging in debate about the options.

**Key Findings**
The key findings are as follows:

- Telecommunications technology changes quickly with trends suggesting that there will be an increase in the convergence of the technology which delivers mobile telephony, broadband internet and television. This will be important in Wales where the demands from rural areas for increased communications coverage may result in new types of masts. In addition there will be a proliferation of small wireless devices to achieve full coverage of service.

- There was general agreement amongst all stakeholders that the current Part 24 of the General Permitted Development Order (GPDO) is unclear, with several issues identified including: complexity of the language; the prior approval procedure; complexity of the regulations; and the illogicality of what currently constitutes permitted development.

- The two key issues addressed by the research were:

    1. whether or not the current permitted development rights should remain; and
    2. whether or not the prior approval procedure should be retained.

    Stakeholder opinion was divided about this issue, with the industry largely in favour of retaining the prior approval procedure and all other stakeholders suggesting that the regulations should be changed to remove it.

- Permitted development rights are different in all four of the devolved administrations of the UK. An investigation and evaluation of Scotland and Northern Ireland, where alternative regulatory regimes have been introduced to reduce permitted development rights, showed that there was no adverse impact (for example, delay, lack of investment, or reduction in roll out plans) on the provision of telecommunications infrastructure.

- Five options for change were devised, ranging from increased regulation to total de-regulation, including an option to retain the status quo. The options were tested on a wide range of stakeholders through interviews and

culminating in a focus group session, in which all options were explored. Given the consensus for change from all stakeholders, retention of the current regulations was considered to be inappropriate.

- None of the stated options, including the recommended course of action, appear to raise significant issues in respect of EU law. There seems to be a tacit understanding that town and country planning restrictions may require mast sharing, implying that it is appropriate for requirements to be in place for telecommunications equipment. As long as there is no deliberate and inadvertent distortion of the market, individual member states can legislate as they need for telecommunications. Evidence of this exists in different regulatory regimes in other European states as well as within the UK.

- Options which further de-regulated the provision of telecommunications infrastructure, including complete de-regulation were not feasible as they were found to exacerbate the problems already identified with the current regulations. Options which suggested much greater regulation could not be justified as a means of resolving the issues identified in the study.

- Evidence suggests that there could be improvements in the forward planning for telecommunications by local planning authorities. Although the operators now produce a joint annual rollout plan every autumn and invite local authorities to discuss their plans, only a very small percentage of authorities engage with this process.

**Main Recommendations**
The main recommendations are as follows:

- Part 24 should be re-written removing the prior approval procedure to require full planning permission for telecommunications structures (as defined) following further work into actual details and dimensions of telecommunications infrastructure to determine the changes to permitted development rights. Operators as well as legislators must be involved in determining any technical details to be included in any amended regulations.
- Due to the perceived success of the focus group, it is recommended that the Welsh Assembly Government facilitate a focus group to reach consensus in determining what should constitute permitted development, to include operators, local planning authorities, interest groups, The Planning Inspectorate (PINS), Welsh Local Government Association (WLGA) (amongst others).
- Any changes must be carried out in full consultation with all stakeholders, and should recognise the efforts that the industry has made in its consultation procedures to involve local authorities and communities.
- Any revised Part 24 must be written in plain language to ensure that the permitted development rights are clear.
- Any change to Part 24 will require an amendment to Planning Policy Wales and TAN 19, as well as the Code of Best Practice for Wales.
- A series of training sessions for Assembly Members and local planning authority officers should be commissioned to ensure that their understanding of the complexity of telecommunications policy can be enhanced, along with

training in better and more effective practices, including early policy making. The researchers are of the view that greater involvement by local planning authorities in the annual rollout process would assist in a better understanding between operators, communities and local government. Early planning for masts can reduce conflict at the planning application stage, and local planning authorities are urged to take the opportunity to discuss and scrutinise the annual rollout plan and to engage the industry in dialogue as much as possible.

# RESEARCH PROJECT FOR A REVIEW OF MOBILE PHONE OPERATORS PERMITTED DEVELOPMENT RIGHTS

## Table of Contents

## List of Tables



## List of Figures

## List of Acronyms

| | |
|---|---|
| CBI | Confederation of British Industry |
| CLG | Communities and Local Government |
| DOE | Department of the Environment (Northern Ireland) |
| DTI | Department of Trade & Industry |
| GPDO | General Permitted Development Order |
| ICNIRP | International Commission on Non-ionising Radiation Protection |
| IEGMP | Independent Expert Group on Mobile Phones |
| LPA | Local planning authority |
| NAW | National Assembly for Wales |
| NPA | National park authority |
| NPPG | National Planning Policy Guideline (Scotland) |
| NRPB | National Radiological Protection Board |
| Ofcom | Office of Communications |
| PAN | Planning Advice Note (Scotland) |
| PINS | The Planning Inspectorate |
| PPG | Planning Policy Guidance |
| RIA | Regulatory Impact Assessment |
| TAN | Technical Advice Note |
| WLGA | Welsh Local Government Association |

# CHAPTER ONE
# INTRODUCTION

This research has been commissioned from the University of the West of England, Bristol by the Welsh Assembly Government to review mobile phone operators' permitted development rights as outlined in Part 24 (as it applies to Wales) of Schedule 2 of the Town and Country Planning (General Permitted Development) Order 1995 S.I. No. 1995/418 (as amended).

The research has been completed by a multi-disciplinary team from the University of the West of England, Bristol, led by Janet Askew (town planner), and comprising Adam Sheppard (town planner); Nigel Baker (telecommunications expert); Alice Dalton (geographer); Tom Appleby (lawyer); and assisted by Deborah Peel (town planner) from the University of Ulster.

## 1.1 Background to research

The proposal for the research arose out of concerns expressed in 2006 by the Environment, Planning and Countryside Committee of the National Assembly for Wales with regard to the land use implications of mobile telecommunications and permitted development rights, when it took evidence from various relevant parties regarding the operation of the relevant order. In a Cabinet Statement responding to that report issued on 29 November, 2006, Carwyn Jones, the then Minister for Environment, Planning and Countryside, called for the research to examine the impact of changing the legislation (Welsh Assembly Government, 2006a and 2006b).

Planning for telecommunications with its use of radio technology, based on a network of antennas erected on masts, has created controversy and some conflict between communities, local and central government and the industry. The high levels of concern arise out of the rapid advances in technology which have resulted in there being more mobile telephones among the population of the UK (now about 74 million) than there is population (61 million), resulting in the provision of approximately 50,300 masts in the UK, of which about 2,500 are in Wales (MOA, 2008). Whilst mobile phones are vital for social and business communications, the public perceive there to be a health risk from telecommunications masts, and this is reflected in debates in the Welsh Assembly when members report on the concerns of their constituents. The Environment, Planning and Countryside Committee's report of 2006 states that the,

> 'challenge for the planning system is to provide an effective telecommunications system that delivers the benefits of modern rapid communication, but that ensures that local people are consulted on development proposals and that their concerns are addressed'.

In the devolved administrations of the UK, different approaches to the regulation of masts have evolved. A separate regime of permitted development rights prevails in Scotland and Northern Ireland, and the legal power to do this exists for the Welsh Ministers. At present, the primary legislative powers to deal with planning are not devolved to Wales, but the Welsh Assembly Government has the power to amend

secondary legislation, namely the Town and Country Planning (General Permitted Development) Order 1995, and its amendments.

As a result of this and because of concerns about the issue generally, the Welsh Assembly Government is seeking a review of code operators' permitted development rights, as regulated through Part 24 of the General Permitted Development Order in Wales. The specification for the research (Appendix A) required an analysis of a series of options against certain impacts, along with an assessment of any discriminatory implications with regard to Directive 2002/21/EC of 7 March 2002 on a Common Regulatory Framework for Electronic Communications Network and Services.

## 1.2 Structure of the report

This chapter has provided a brief introduction to the research project. Chapter two outlines the research questions. Chapter three discusses the research methods used to research these questions. Chapter four sets the context for the telecommunications industry and emerging technologies in Wales. Chapter five reviews existing literature relating to the GDPO. Chapter six offers an introduction to legislation regarding telecommunication and chapter seven explores planning policy and guidance for Wales. Chapter eight then analyses planning performance throughout the local authorities of Wales. Chapter nine is an in-depth discussion of the issues concerning the current legislation for telecommunications permitted development, including specific reference to evidence collected as part of this research. Chapter ten provides an extensive discussion of the options for the future of the legislation, paying particular regard to the impacts on stakeholders of introducing particular changes. Chapter eleven puts forward the preferred option for change to the legislation, providing associated rationale for this conclusion. Finally, chapter twelve outlines additional recommendations. Appendices include the specification for the research, and a section on 'telecommunications and emerging technologies'.

## CHAPTER TWO
## RESEARCH QUESTIONS

The aim of the research is to assess and analyse the impact of changing the regulations in Part 24 of the General Permitted Development Order as they affect electronic communications code operators. The original specification required an assessment of permitted development rights for 'mobile phone operators'. Because the regulations apply to all 150 electronic communications code operators, not just those who provide mobile telephony, it was considered that any amendments would potentially have an impact upon all, and that their needs should be taken into account in the research.

A further modification to the research arose out of the impacts to be measured. Evidence emerged which suggested that to the list of technical, economic, safety and legal impacts might be added environmental and social impacts, since both are important considerations raised by respondents.

The research question therefore is:

> *What are the options for amending Part 24 of the Town and Country Planning (General Permitted Development) Order 1995 (as amended), and what are the associated impacts (economic, technical, safety, legal, environmental and social) of these changes upon electronic communications code operators and other stakeholders?*

In order for this question to be answered a number of sub-questions had to be answered:

1. How are the current regulations contained within Part 24 working?

2. Should there be amendments to the regulations regarding the use and application of permitted development rights and the prior approval procedures?

3. Are there any technical or legal reasons why changes should not be made to the permitted development rights regime for electronic communications infrastructure, and will there be any safety implications?

4. How consistently are the current planning guidelines in as much as they support interpretation of Part 24, particularly Technical Advice Note (TAN) 19 and the Code of Best Practice, being applied in Wales?

5. How well are the regulations along with planning guidance working around sensitive sites, particularly in national parks and areas of high landscape value?

6. Is there any good practice from other parts of the UK or other European countries which could be shared to inform debate in Wales?

# CHAPTER THREE
# RESEARCH METHODS

Phase 1 of the research methodology consisted of information gathering to inform the implications and effects of possible options for changes to the legislation. This consisted of an in depth review of the legislation, policy, relevant research and any other literature; an initial call for stakeholder evidence; stakeholder interviews; the collection of statistics. Phase 2 consisted of the analysis and assessment of the findings, using specialist advice, followed by a focus group workshop. Phase 3 was the preparation of the final report for the Welsh Assembly Government.

## 3.1 Scoping study and literature review

An in depth review of all legislation, policy and other literature relevant to telecommunications and planning regulation was conducted, including experience in Scotland, Northern Ireland and the rest of Europe. This was substantiated with a review of current telecommunications practice and in order to facilitate a better understanding of the types of development the regulations might have to deal with in the future, an examination of the emerging technologies was also undertaken.

## 3.2 Initial call for evidence

A list of 112 potential stakeholders involved in the delivery, use or regulation of mobile phone infrastructure in Wales was created (Appendix B). This was based on the literature review, researcher experience, previous Government debates in England and Wales, Welsh Assembly Government guidance and their subsequent review of a preliminary list. The stakeholder list consisted of the 22 local planning authorities, three national park authorities, mobile telecommunications operators and the Mobile Operators Association, campaign groups, community groups, health research groups, the Planning Officer's Society, the CBI, telecommunications network/infrastructure providers (including those operating for the emergency services, Airwave Solutions Ltd), Welsh Water, the Environment Agency, the Welsh Local Government Association, One Voice Wales, Network Rail, Ofcom, Royal Town Planning Institute, the Planning Inspectorate for Wales, West Wales Chamber of Commerce, Public Services Ombudsman For Wales and the police. Each stakeholder was sent a call for evidence on 23 July 2008 by post requesting a submission of evidence by 29 August 2008. This consisted of two documents: a covering letter introducing the researchers, the project aim, contact details and the anticipated process; a detailed notice explaining the call for evidence, posing six questions for participants to respond to and detailed instructions regarding submission. Both documents were sent in English and Welsh translations. Stakeholders were informed that it would be at the discretion of the Welsh Assembly Government to publish any evidence it received. It was requested that any information that a witness would not wish to be considered for publication should be clearly marked. The notice was also published by the University of the West of England as a press release, displayed on the University web page and sent to newspapers in Wales.

A total of 30 responses were received from the stakeholders (Appendix C).

### 3.3 Telecommunications applications statistics

In order to gauge how many telecommunications applications are being made, how this has varied in the past, the types of decisions made and the speed at which they are processed, detailed statistics were required from the local planning authorities and/or telecommunications operators. These statistics were not publicly available and they had to be specifically requested. Three sources of data were obtained. Firstly, the head of development control/management at the 25 local planning authorities (22 local authorities, 3 national park authorities) was contacted, requesting information regarding telecommunications applications since 2000. Respondents were asked to detail numbers of applications, type of application (prior approval or full planning), determination decision, length of determination, delegation rate (committee or delegated decision), number of appeals and appeal outcome (upheld or dismissed). A total of ten local planning authorities and one national park authority provided the requested information, representing over one third of authorities in Wales (Appendix D). Many of these authorities had not responded to the initial call for evidence.

Secondly, telecommunications code system operators were contacted via the Mobile Operators Association to obtain information regarding numbers of applications they had submitted to planning authorities in Wales and the resulting decisions. Unfortunately, the operators were unable to provide this information as it was not available in a suitable, comparable format.

### 3.4 Stakeholder interviews

A series of in depth, face-to-face, structured interviews were conducted with a range of stakeholders involved with telecommunications in Wales to gauge the range of issues, potential options available and the anticipated impacts of their introduction. Structured interviews command a high response rate; allow full, specific and comparable responses; and provide the interviewer scope to probe interviewee responses. In order to gain a good cross section of views, an invitation for interview was sent out to 14 stakeholders from the initial list (Appendix E.1). This included industry representatives, community and town councils through One Voice Wales, local government representatives in the form of local planning authorities, the Planning Inspectorate Wales (PINS). Local planning authorities were selected through stratified sampling based on geographical location, including spatial location in relation to Wales and urban/rural nature. It was important to capture views from a range of urban and rural authorities at a variety of locations in Wales to include a spread of coastal, peripheral, central and remote. A total of 10 interviews were conducted (nine face-to-face, one by telephone), and one local planning authority opted for self-completion of the structured questions due to time constraints (Appendix E.2).

Comparative research was conducted in Scotland and Northern Ireland where the planning system for telecommunications development is different. This built upon earlier research in 2004 which evaluated the revised planning controls (Lloyd et al., 2004). For this research, a literature review and follow-up face-to-face interviews with representatives from the Planning Service and Scottish Government have been

supplemented by a number of telephone interviews with local planning authorities in Scotland.

### 3.5 Focus group workshop

Following the literature review, call for evidence and stakeholder interviews, options for changes to the legislation were developed. A focus group workshop was organised with key stakeholders to discuss the options for changes to the legislation. The purpose of the session was to work towards consensus on the facts (findings) about changes to planning regulations, particularly in respect of permissions for masts and the role of the GPDO; to test alternative positions of stakeholders and attempt to achieve 'buy-in' from all; and to test preliminary conclusions and recommendations. The group session was designed to understand which options the stakeholders preferred and to obtain feedback regarding all options, particularly regarding the social, economic, technical, safety, legal and environment impacts of introducing them, based on the requirements of the research specification.

A total of forty two stakeholders were invited to attend the session held in Cardiff (Appendix F.1). Cardiff was chosen for its excellent transport networks considering that attendees would be travelling from areas across England as well as Wales. All local planning authorities that had returned development control/performance statistics were invited, including members and officers. All of the mobile operators and their representative body were invited. Other invitees included Airwave, the CBI, campaign groups, community groups, health research groups, the Planning Officers' Society, telecommunications network/infrastructure providers (including those operating for the emergency services, Airwave Solutions Ltd), the Welsh Local Government Association, the Planning Inspectorate for Wales and Public Services Ombudsman For Wales. In addition to the stakeholders originally identified, it was felt necessary to also invite town and community councillors. Of those invited, 14 stakeholders accepted the invitation to attend the focus group meeting (Appendix F.2). Two of the respondents were unable to attend on the day: Airwave and the Planning Officers Society, although a planning officer from Carmarthenshire attended instead. An additional attendee was present, representing Mobile Broadband Network Limited (Appendix F.3). In total, there were fourteen participants, including seven from local planning authorities, one from the CBI Wales, one from a community protest group, and five representing operators, including the MOA. A professional facilitator was employed to conduct the proceedings, allowing the researchers to observe, take notes and listen.

The focus group were introduced to the five options for changes to the legislation, which were presented to the attendees as a continuum of choices. The first part of the session divided participants into two groups chosen to have broadly similar interests, one containing all operators and the business representative; the second containing all local planning authorities and the community representative. The groups were asked to report back on which of the five options would be best for all stakeholders, if/how they would further refine the options, and reasons as to why they felt that the chosen option would be best. This was used to understand the preferred options and to make sure all possibilities had been considered by the research team. The second part of the session divided participants into three groups, each containing a selected range of stakeholders to allow for a mixture of planning authority, operator, community and

business interests. The groups were asked to see if they could all agree on a way forward, choosing an option that all participants would accept. This was used as a method of gauging the degree of agreement and possible consensus regarding changes to the legislation. The structure and the findings from the session are summarised in Appendix G.

# CHAPTER FOUR
# TELECOMMUNICATIONS AND EMERGING TECHNOLOGIES

## 4.1 Introduction to wireless networks

It is considered important for planners and legislators to understand how telecommunications work, as ignorance of the technology can lead to the production of ill-conceived regulations and policies. There is added value in understanding what the emerging technology might be, to allow judgements to be made about future requirements and subsequent legislation. As part of the research, a telecommunications expert provided this knowledge, and his report in full is reproduced in Appendix H. It is important to understand how this relates to the situation in Wales, and this chapter provides some indication of how changes to technology might have an impact on the provision of telecommunications both now in areas where coverage is poor, and in the future with the rollout of new technology.

## 4.2 Types of cellular network

The GSM-UMTS family of mobile networks is continuously evolving with a roadmap of new technologies and techniques being regularly introduced. The 3rd Generation Partnership (3GPP*) is a collaboration of standards bodies from around the world that is responsible for the specification of these technologies in the form of Releases. Recent Releases include introduction of an internet IP core network; Internet Multimedia System (IMS) which provides for the management and delivery of audio and video streams combining broadcast (TV and Radio), IP and mobile networks; high speed data services (HSDPA, HSUPA, HSPA) for mobiles and broadband delivery. The significance of this to the research into Part 24 of the GPDO is that until this time communication between mobiles had been one to one as in a traditional telephone call. These new services enable multimedia, broadcast and computing power to mobile users. Many of the new technologies increase the capacity, performance and speed of data transfer, creating in mobile phones a broadband computing capability. As an example in Release 7 (2007) High Speed Packet Access (HSPA) by combining multiple antenna and modulation techniques will support data rates of up to 42Mbps in the down to and 11.5Mbps up from a mobile device. Long Term Evolution (LTE) currently being defined in the latest Release 8 will herald another major step forward in mobile communications, and is cited as an example of 4G technology. Antenna solutions will be used by LTE to improve coverage, capacity and data rates (down to mobile peak rates of at least 100Mbit/s and up from the mobile 200Mbit/s is targeted). It is expected that not only mobile phones but other consumer devices such as laptops, cameras, camcorders and games consoles will be LTE enabled allowing mobile broadband connection rates. Many mobile handsets are already enabled to receive these new feature but they must be served by 3G networks. The difficulty for Wales is fully apparent when looking at figure 4.1. All this technology evolution is based on 3G networks and coverage is poor across Wales.

* www.3gpp.org

### 4.3 Emerging wireless technologies

As digital and network convergence progresses other types of wireless networks are emerging. The IEEE 802.16 Working Group has developed a family of air interface standards designed to develop wireless broadband for metropolitan areas commonly known as WiMAX. The early version of this standard provided fixed broadband wireless to end terminals. However amendments to the standard documented called Mobile WiMAX, now allows for mobility of terminals and non line of sight coverage with range of the order 6 – 8 km. There are and will be future deployments of WiMAX and Mobile WiMAX in the UK but its depth of penetration into the wireless market both fixed and mobile is still uncertain. Certainly fixed WiMAX offers fixed broadband everywhere and is an especially good solution in rural areas of Wales where ADSL may not reach. Convergence of mobile phone networks, broadcast networks (TV and Radio) and Internet Protocol (IP) computer networks towards a common digital IP base has seen the emergence of technologies suited to several communication domains, such as DVB-H (Digital Video Broadcasting – Transmission for Handheld terminals)[*] which brings TV to the mobile phone. For national coverage a separate network of a large number of transmitters is required. In more open or rural areas higher output powers and taller antenna masts are possible. The obvious solution is to co-locate the low-power DVB-H transmitters with cellular base stations sites. Although the network technologies are very different, infrastructure such as power, masts, connectivity can be shared to reduce costs.

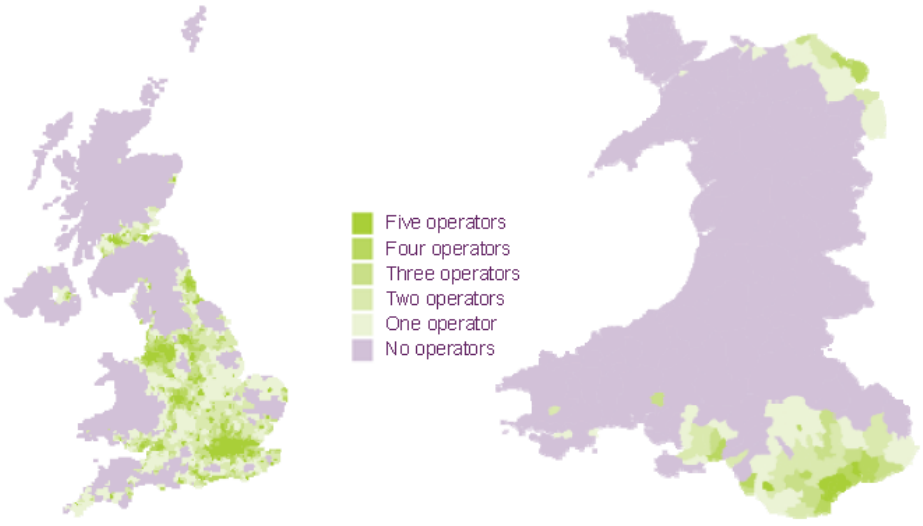


**Figure 4.1.** Map of 3G mobile phone geographic coverage in the UK and Wales, by number of operators
*Source: amended from Ofcom, 2008b: 72*

Another recent wireless development is the femtocell. With the increased mobile device computing capacity, capability and potential broadband connection rates it is

[*] ETSI EN 302 304 V1.1.1 (2004-11) http://www.etsi.org

becoming clear that users need to be seated or stationary to use some of the more sophisticated services on a mobile device. The home is one place where users spend time and can make full use of increased capacity and coverage supplied by a femtocell. This compact device provides the functionality of a low power 3G mobile base station with broadband DSL modem connection. The main target of this device is the home so when a phone is in range of the femtocell it will use this in preference to out door base stations. Certainly they may be attractive to users with poor 3G home coverage particularly in the rural areas of Wales but then it is dependent on DSL connection.

### 4.4 Future trends

Predicting future technology trends is always difficult since peculiar disruptions can often occur. The most striking forecast is not the increase in radio base stations and masts but proliferation in number and density of small wireless devices. Wireless communication capability is being added to more and more everyday objects. Network connectivity is becoming ubiquitous linking devices as small as a paperclip and as large as a city transportation system. The combination of being able to have wireless communication, computing power and sensors all on a small object is leading to the creation of new 'intelligent' artefacts. The key point is that it is miniaturisation of wireless communication between these artefacts that is underpinning and driving this technology revolution.

Wireless and cellular networks experience a constant cycle of both business and technology innovation and evolution. It is clear that technology evolution will see continuous installation of new types of antennas, radio base stations and the rollout of new types of networks. This will not necessarily mean a large increase in the number of mast cell sites. The almost complete deployment of GSM and near completion of 3G has secured cell sites for reasonable coverage for these and future emerging wireless technologies. The costs of establishing a new site together with continuous management of cell sites is a major cost for operators. Consequently there will always be some reluctance to expand site numbers unless it is essential. Customers expect good quality mobile services anywhere anytime. To experience these satisfaction levels for new types of services requires deployment of infrastructure quickly throughout the country. This is a large expenditure outlay well before revenues accrue from the service. This motivates operators, as observed in the UK, to share sites and equipment. This current round of sharing is driven by the need to complete 3G coverage and offer mobile broadband. It is predicted that this will eventually significantly reduce the number of cell sites and antennas in the UK. Operators are in a competitive business and these sharing agreements are time bounded so some time in the future sharing agreements could cease. The important point as far as planning law is concerned is to understand these trends. It must also be recognised, whether there is an increase or reduction of sites, that as technology evolves new types of antennas and base stations will be continuously deployed bringing new services to customers. This will occur not only with the GSM family of technologies but other new wireless technologies; WiMAX, DVB-H (mobile TV), DAB (digital radio) and digital TV (DVB-T) being examples. To share in this technology evolution, to a large extent therefore, depends on current 3G coverage which for Wales could be better.

# CHAPTER FIVE
# PREVIOUS RESEARCH

## 5.1 Commissioned research projects into the regulations

There have been a number of commissioned research projects which are relevant to the consideration of changes to the regulations in Part 24 of the GPDO, some of which also relate to the problems perceived to arise out of the statute as it is currently framed. The Welsh Assembly Government has been involved in jointly commissioning research with appropriate UK Government departments. To date, no action to alter any of the regulations in line with any of the research has been taken in England and Wales.

In 2003, the then Office of the Deputy Prime Minister commissioned consultants Nathaniel Lichfield to review (all) permitted development rights, with a remit to simplify the rights expressed in Part 24. The findings of the report are extensive, but the main issues identified are:

- difficulties of interpretation by local planning authorities due to its complexity, resulting in local authorities suggesting that the whole of Part 24 be removed completely rather than any minor changes made;
- that the prior approval procedure should be removed, subjecting most applications to full planning control;
- although it is allowed, there were no cases of the use of Article 4 directions;
- that operators were happy that Part 24 was working satisfactorily;
- that Part 24 was poorly expressed, and that further definitions were required to facilitate comprehension.

The consultants made several recommendations which involved clarifying the definitions of some words such as roof slope, wall, antenna system, and amongst other things, a suggestion that Part 24 rights should be extended to licensed broadcasters. It was commented that major change might be required, but it was outside the scope of that research.

The Department of the Environment Planning Service, Northern Ireland, also carried out an investigation of the GPDO in Northern Ireland (Nathaniel Lichfield, 2003). It concluded that the prior approval was ‘universally disliked’ except by the operators themselves. There was evidence cited of the use of some Article 4 Directions for telecommunications. Prior to the removal of permitted development rights in Northern Ireland, the research noted that there had been numerous enquires from the public and operators about what constituted de minimis, and what needed planning permission. The new regulations had improved the situation.

## 5.2 Other relevant research

There has been no other research directly into permitted development rights, although many issues concerning the regulations, and in particular, the prior approval procedure and the complexity of the GPDO has been mentioned in other reports. The

report of the inquiry by the All-party Parliamentary Group on mobile phones (apMobile) (Askew, 2004), for example, explored issues pertaining to permitted development rights, and explained that it became the main issue of its inquiry. Whilst the operators endorsed the current regime in England and Wales, all other respondents in that inquiry called for a revocation of permitted development rights and the abolition of the overly complex prior approval procedure. It was concluded that this would assist in restoring trust between communities, the industry and Government.

Following large numbers of complaints (over 600 in ten years) to the Commission for Local Administration in England, the Local Government Ombudsmen (2007) investigated why the erection of some phone masts caused local disquiet and controversy, and found that most of the problems arose out of applications made under the prior approval procedure. In particular, the ombudsmen found that local authorities had a significant part to play in ensuring that the procedure runs smoothly with particular attention to the detail of registration, consultation, and decision-making, and that they should ensure that this is done in a timely and efficient manner. It was concluded that the Code of Best Practice should be reviewed to clarify legal requirements for the submission of applications.

In 2005, the (then) Office of the Deputy Prime Minister (ODPM), supported by the National Assembly for Wales, commissioned research into the operation of the Code of Best Practice. Consultants reported on how well the code is working, and the extent to which it supports interpretation of the regulations and implementation of planning policy in England and Wales. Whilst it mainly concerns itself with issues of community awareness and consultation, the code was found to contribute to the submission of better documentation with planning applications, including the introduction of a template for both full planning permission and prior approval. However, there was a recommendation in the report that the code should be revised to create a 'companion guide' to a new Planning Policy Statement (PPS8) (in England) and to a revision of chapter 12 of Planning Policy Wales, and a revised TAN 19 in Wales. The Environment Planning and Countryside Committee of the National Assembly for Wales recommended that the code be amended in line with the findings of the consultants, and the Minister's response in a Cabinet Written Statement (22 November 2006) indicated that this was acceptable to the Assembly Government, although it has not yet been carried out (Welsh Assembly Government, 2006a and 2006b).

Health considerations remain important in the debate about the provision of mobile telecommunications. Issues arise over the extent to which health considerations should be taken into account as material considerations in both applications for full planning consent and in prior approval applications. Reports from the apMobile inquiry and the Local Government Ombudsman for England suggest that it is this which confounds and confuses the public, and this was acknowledged by the Environment, Planning and Countryside Committee of the National Assembly for Wales (2006). It heard of difficulties encountered by local planning authorities when having to deal with objections to telecommunications infrastructure on grounds of adverse risk to health. The committee also noted that there was a conflict between policy and guidance over the health impact, and that this should be resolved and clarified.

A recent source of information on the health research programme is the 'Mobile Telecommunications and Health Research' (MTHR) Programme report of 2007. The MTHR was established in 2001 on the recommendation of the Independent Expert Group on Mobile Phones. It has commissioned research into aspects of exposure to radiation given by mobile phones and base stations and concludes that,

> 'none of the research supported by the programme and published so far demonstrates that biological or adverse health effects are produced by radiofrequency exposure from mobile phones' and that
>
> '…work on measurement of base station emissions…confirmed that exposures are low',

but the report suggested that further research is necessary as there remain gaps in the knowledge. In particular, it is necessary to assess whether long-term exposure (more than ten years) increases the risk of developing cancer of the brain and nervous system. The MOA reports on its website (2008) on the findings of 34 studies, from different countries in the world, on the impact on health from mobile phones and base stations. Despite the findings, protest groups and those opposed to the siting of mobile phone masts always cite the principle of the 'precautionary approach' which is borne out by the findings of the MTHR, which is now seeking further research on the long term impact. This is significant to any consideration of the regulations because of the debate regarding the weight to be accorded to health concerns as material considerations, and pressure from the public suggests that some remained confused about this.

In Scotland, following the introduction of a new general permitted development order in 2001 (Scottish Executive, 2001a), an evaluation of the new system was commissioned by the Scottish Executive in 2004. The general conclusion reached was that the new regulations were working well, and that there had not been adverse impact on the technology, the investment in telecommunications nor upon local planning authority workloads, and that design and siting were subject to more discussion (Lloyd et al., 2004). The importance of member involvement was stressed in order to create at atmosphere of trust between the parties.

A further review of the (entire) general permitted development order (of 1992) in Scotland was carried by the Scottish Executive (Prior et al., 2007), and in commenting on Part 21 Telecommunications, it was observed that the current regulations were suited to a rapidly evolving technical industry, although it was suggested that further modifications and clarification of the language might still be necessary.

In 2007, the GSM Europe Association commissioned research to review the building of mobile networks across Europe to respond to public concerns, offering some comparison between approaches in different countries. In the section on 'base station planning permission in Europe', a variation in the amount and type of regulation is observed. It is noted that it is usually the local authority (municipality) which is the main point of referral for permissions, and that some countries have 'effective systems of exemptions for small installations or certain site upgrades'. Portugal and Italy are singled out as places where 'bureaucratic inefficiencies' are avoided. The GSM research attempts to draw comparisons between legal commitments and the

timescales achieved for granting planning permission, showing that where legal commitments are great, as in Austria and Spain for example, the time taken to approve new infrastructure tends to be longer (12 months and 18 months respectively), but this can also be the case where legal commitment is low. In Cyprus and Greece, it can take up to 24 months for a permission, 18 months in Belgium. Referring to levels of public concern, the report reiterates the view that it is health concerns which occupy the public, while aesthetic concerns appear to be at a lower level. This is borne out in the findings of the researchers in this study and others (Askew, 2004).

# CHAPTER SIX
# LEGISLATIVE BACKGROUND IN WALES

## 6.1 Telecommunications Act 1984 and Electronic Communications Act 2003

The electronic communications code is set out in Schedule 2 to the Telecommunications Act 1984 as amended by Schedule 3 to the Communications Act 2003. The former grants powers to run electronic communications systems, and the right to erect telecommunication installations is conferred upon various operators under the Communications Act 2003. There are 150 electronic communications code operators in the UK upon whom the rights are conferred, five of whom are the telecommunications code system operators, who are licensed to deliver the mobile phone networks. They are Orange, Vodafone, 3, T-Mobile and O2, whose interests are represented by the Mobile Operators' Association (MOA). A sixth operator, Airwave, delivers the network for the emergency services, known as the TETRA network.

## 6.2 General Permitted Development Order

**The Town and Country Planning (General Permitted Development) Order 1995, Statutory Instrument No. 1995/418 as amended by The Town and Country Planning (General Permitted Development) (Amendment) (Wales) Order 2002, Welsh Statutory Instrument 2002 No. 1878 (W187)**

Planning permission is required for the carrying out of any development of land. The Town and Country Planning (General Permitted Development) Order 1995, Statutory Instrument No. 1995/418 as amended by The Town and Country Planning (General Permitted Development) (Amendment) (Wales) Order 2002, Welsh Statutory Instrument 2002 No. 1878 (W187) (hereafter referred to as the GPDO) grants permission for a wide range of developments without the need for a planning application for express permission.

Where express permission is required, application is made to the local planning authority which has to follow certain procedures before reaching a decision on the proposal. These include registration of the application, publicity for the proposal, notification of the proposal to various bodies and by various means of advertising, and consultation with a wide range of consultees. In addition, with effect from 1 August 2002, the Town and Country Planning (General Permitted Development) Order 1995 (as amended), a statutory requirement exists in Wales to submit a declaration of conformity with ICNIRP public exposure guideline for both planning applications and prior approval submissions. This is not the case in England, where this is only best practice in the context of the prior approval procedure. Local planning authorities aim to make a decision within eight or thirteen weeks primarily in accordance with the statutory development plan unless material considerations indicate otherwise. In practice, they will have regard to a number of other factors, including Government policy, the results of the consultation, other non-statutory guidance, and any other issues deemed to be 'material considerations' as interpreted by case law. The application can be refused with clear and precise reasons, or granted with conditions relating to a wide variety of issues. In the event of a refusal of planning permission, an

appeal can be made to the Welsh Ministers, who appoint an inspector to decide the outcome of an application (Askew, 2004).

In Wales, the GPDO lays down the classes of telecommunications development which are permitted under the Order, and these are known as 'permitted development rights'. Part 24 of the GPDO confers upon electronic communications code operators the right to erect telecommunication installations and infrastructure within certain size limitations without the need for express permission.

In addition, Part 24 of the GPDO allows for a third type of procedure to express permission and permitted development and that is the 'prior approval procedure'. The prior approval procedure is not unique to telecommunications applications, and it exists in certain circumstances for some applications for agricultural development and for demolition. Sometimes this is referred to as a 'three tier system' of approval (MOA 2008). The procedure was introduced as a safeguard to respond to public concerns, which gave an opportunity for public scrutiny of telecommunications developments within a prescribed timescale. The introduction of this measure, rather than the removal of the extant permitted development rights to require planning permission for all but the most minor of telecommunications development, reflects the recognised importance of the efficient rollout of a comprehensive network.

In summary, the developments which are subject to a prior approval procedure apply to the construction, installation, alteration or replacement of:

a. a ground-based mast of up to 15 metres in height;
b. a mast of up to 15 metres in height installed on a building or structure;
c. an antenna which exceeds the height of the building or structure by more than 4 metres;
d. a public call box;
e. radio equipment housing with a volume in excess of 2.5 metres;
f. development ancillary to radio equipment housing (e.g. fencing, access roads);
g. certain development on Article 1(5) land.

The procedures for prior approval are outlined in Part 24 in paragraph A.3 (3) which states that,

> 'Before beginning the development, the developer must apply to the local planning authority for a determination as to whether the prior approval of the authority will be required to the siting and appearance of the development'.

There follows a two stage process which is outlined in A.3 (7), which states that the local planning authority should write to the applicant to state whether or not the authority wants to approve the siting and appearance of the proposed development. The Order states that the local planning authority must notify the applicant within 56 days (increased from 42 days in 2002 after the 'Stewart Report' of 2000 (IEGMP, 2000)) of receipt of the application of their decision to approve or refuse the development. In the event of the local planning authority not exercising their rights under this part of the Order, it is taken that the development receives a 'deemed' consent for the works. In fact, the target for a decision for all minor applications for

full planning permission is also 56 days, but the crucial difference is that if no decision is made within this time period, the local planning authority may take more time to reach a determination without legal penalty.

In some designated areas, known as Article 1(5) land, which includes national parks, areas of outstanding natural beauty and conservation areas, as well as in sites of special scientific interest, permitted development rights are reduced and the prior approval procedure does not apply.

# CHAPTER SEVEN
# PLANNING POLICY FOR WALES

## 7.1 The Wales Spatial Plan

The Wales Spatial Plan (2008 update (Welsh Assembly Government, 2008)) emphasises the role of telecommunications in providing sustainable accessibility, access to services, economic growth, rural deprivation and reducing the need to travel – particularly important in rural and peripheral areas which do not have high bandwidth broadband, mobile coverage or digital television coverage.

Priorities have been identified for specific areas of Wales, related to particular needs. For central Wales this includes: providing innovative high-speed connectivity to strategic employment sites / settlements and to the wider rural areas; addressing the remaining 'broadband not spots', adopting last / first mile capacity approach; providing support at the level of integrating systems to improve business processes; ensuring that mobile signal by the major operators is made available on all major connectivity corridors in the region; providing ICT training to address business needs and to enable and support greater home working and to develop community exploitation of ICT. For North West Wales these are specified as: future investment in upgrading the infrastructure, which maximises accessibility to the opportunities available, including high speed ICT connections; building upon the success of the 'Anglesey Connected' wireless network; providing infrastructure, as well as dedicated support for the take up and utilisation of ICT especially for development of key sites / settlements and the wider rural areas which are not closely linked to the A55 corridor, is vital to substantially improve the competitiveness of business within the global market and to address social exclusion. For Swansea Bay and Pembrokeshire: improved telecommunication links.

## 7.2 Planning Policy Wales

Planning Policy Wales (March 2002 (Welsh Assembly Government, 2002a)) recognises a need for access to modern, high-speed telecommunications services throughout Wales (Chapter 12 'Infrastructure and Services', paragraphs 12.11 and 12.13). Local planning authorities are encouraged to respond positively to telecommunications development proposals, while taking account of the advice on the protection of urban and rural areas. The following should be considered:

- mast sharing
- blending with background
- use of existing buildings
- minimise the impact on amenity and the external appearance of the building
- re-use of existing sites
- annual discussions about roll-out plans between operators and Local planning authorities
- pre-application discussions between operators, local planning authorities and other organisations with an interest in the proposed development

- radio interference with other electrical equipment of any kind can be a material planning consideration.

Planning Policy Wales contains the following policy on health considerations, the main points being:

- Health considerations can be material considerations; it is for the decision-maker to determine what weight to attach to such considerations in any particular case.
- If the development meets ICNIRP guidelines, it should not be necessary for a local planning authority in processing an application for planning permission or prior approval, to consider further the health aspects and concerns about them.
- Local planning authorities should not implement their own precautionary policies such as ban on development or imposing minimum distances.

### 7.3 Technical Advice Note (TAN) 19: Telecommunications

The Technical Advice Note (TAN 19) for telecommunications was published in 2002 (Welsh Assembly Government, 2002b), and is to be read in conjunction with Planning Policy Wales. It offers similar advice to the English Planning Policy Guidance Note 8 (PPG8) on telecommunications which was amended in 2001 (CLG, 2001) to take account of the recommendations in the 'Stewart Report' (IEGMP, 2000). Stewart recommended that Government should adopt a 'precautionary approach' with regard to telecommunications, and one of his key recommendations was that permitted development rights be revoked for all base stations, requiring them to be subject to the normal planning process.

TAN 19 offers advice to local planning authorities on how to deal with applications for telecommunications, including advice on the use of Article 4 directions where an authority might want to withdraw permitted development rights (paragraphs 37, 38). Operators are encouraged to share masts and sites, and paragraph 57 states that where there is no evidence to suggest that this has been attempted, this will be grounds for refusal for both applications for planning permission and prior approval. Advice is given on siting and design (paragraph 65). The fact that conformity with ICNIRP guidelines has to be stated with all applications is emphasised in paragraph 83, and (going further than the English PPG8), TAN 19 requires a statement from each applicant indicating location, height of antenna, frequency and modulation characteristics, and details of power output, as well as confirmation that cumulative exposure will not exceed the ICNIRP guidelines. TAN 19 reiterates that enforcement of health and safety legislation is a matter for the Health and Safety Executive (HSE).

### 7.4 Code of Best Practice on Mobile Phone Network Development

To assist in the interpretation of the GPDO, and to build on advice given in TAN 19, a Code of Best Practice on Mobile Phone Network Development was published in 2002 by the Welsh Assembly Government in conjunction with the Mobile Operators Association. The key objective of this is to improve dialogue and consultation with local communities, and it includes two important approaches to the rollout of mobile

phone networks: the industry's ten commitments and a description of the traffic light model of consultation in which sites are rated as high risk (red), medium risk (amber) or low risk (green) according to the likely levels of community interest. The ten commitments includes a commitment by the industry to develop standard supporting documentation for all submissions under prior approval and full planning procedures, and it is largely acknowledged that this has been achieved (evidence as part of this study from MOA, local authorities, PINS Wales).

### 7.5 Local authority planning policy

At local authority level, all unitary development plans contain policy on telecommunications none of which departs from national policy. Only two of the Welsh authorities, Blaenau Gwent and Flintshire, have specific published guidance regarding telecommunications policy, over and above generic development principles included in local plans, unitary development plans and local development plans. Denbighshire is currently developing supplementary planning guidance (SPG).

Blaenau Gwent has supplementary planning guidance (SPG Note 5) document 'Telecommunications Policy: The Corporate Telecommunications Policy of Blaenau Gwent County Borough Council' (adopted August 2000, replacing the previous SPG 'Telecommunications', 1998). This document clarifies environmental health, planning and landlord policy regarding telecommunications. Blaenau Gwent goes further than other policies by stating where telecommunications and other receivers and transmitters will be permitted. Specific considerations address site selection and visual intrusion, for which the local authority adopts a precautionary approach in residential areas. It lists six 'sensitive locations' where 'new base stations will not normally be permitted', to be identified in the pre-application discussion stage. These locations are near schools and hospitals as well as on hilltops in open countryside and on some special landscape areas. Policy includes guidance on visual impact.

By adopting specific restrictions on development, Blaenau Gwent acts against the advice of the Welsh Assembly Government that 'local planning authorities should not implement their own precautionary policies, such as imposing a ban or moratorium on new telecommunications development or insisting on minimum distances between new telecommunications development and existing development' (Planning Policy Wales, 2002, section 12.13.9, page 134).

Flintshire has adopted 'Local Planning Guidance Note 18: Telecommunications' (Issue 2, adopted 20/02/2007). This provides emphasis and additional guidance regarding the role of the council in relation to permitted development rights, prior approval, national policy, design principles, and best/worst locations for development, while recognising that authorities should not implement their own precautionary policies. It requires more in the way of design assessment for proposals, requiring the development to be shown in relation to landmarks, views and features, as well, as encouraging the use of 'sustainable materials in the construction'.

# CHAPTER EIGHT
# DEVELOPMENT MANAGEMENT PERFORMANCE IN WALES

It is important to understand the impact of any changes in the regulations on local planning authorities in Wales, and in order to assess that, some research has been carried out into their performance in dealing with planning and other applications. This data is based on what has been made available to the researchers, and the figures in this chapter have been collected as part of this study unless otherwise referenced.

## 8.1 Current application numbers

The evidence suggests that applications for telecommunications developments peaked in 2004-2005 (table 8.1). The number of planning applications and prior approvals received by the local authorities who engaged in this research for the year 2007-2008, excluding national park authorities (NPA), were running at approximately 40% of the level seen in 2004-2005. All the local authorities interviewed commented on the fact that application numbers are currently very low.

| **Financial Year** | **Number of telecommunications 'applications' in Wales (all types from sample authorities, excluding NPA*)** |
|---|---|
| 2007-2008 | 41 |
| 2006-2007 | 58 |
| 2005-2006 | 71 |
| 2004-2005 | 98 |
| 2003-2004 | 60 |

**Table 8.1.** Number of telecommunications applications for local planning authorities in Wales

PINS Wales statistics also show, after a predictable time lag, appeals numbers falling away, after a peak in 2005-2006, supporting the overall downward trend in application numbers (table 8.2).

| **Financial Year** | **Number of appeals lodged (all types, all LPA)** |
|---|---|
| 2007-2008 | 15 |
| 2006-2007 | 29 |
| 2005-2006 | 35 |
| 2004-2005 | 11 |
| 2003-2004 | 12 |

**Table 8.2.** Number of telecommunications appeals for PINS Wales

The advice received through this research points to the fact that future requirements will be focused around upgrading antennas and increasing capacity, and are likely to be based upon the utilisation of many sites that the operators already own or use. The

* See Appendix D

point is also made that in the future, the planning requirements are likely to be very different. These points support the suggested application/appeal trends detailed in tables 8.1 and 8.2. As noted earlier in this report, and based upon predictions of future technology, it is anticipated that there will be an increase in the sharing of mobile network infrastructure. It is likely that application numbers will continue at a low level, with consolidation, rather than expansion of networks.

## 8.2 Decision-making and performance

For the financial year 2006/2007, an average 59% of planning applications in Wales were determined within eight weeks (56 days) of receipt (table 8.3). The Government target for consideration of full planning applications within this timescale is 80%. Telecommunications matters currently processed through the prior approval procedure must be determined within 56 days, or deemed consent is granted. A move to full planning applications for all telecommunications development would remove the deemed consent arrangement. Current local planning authority performance is therefore of interest as an indicator of anticipated performance.

| **Planning Authority** | **Percentage decided within 8 weeks of receipt (all applications)** |
|---|---|
| Wrexham | 76 |
| Conwy | 74 |
| Isle of Anglesey | 71 |
| Gwynedd | 70 |
| Denbighshire | 70 |
| Merthyr Tydfil | 70 |
| Rhondda Cynon Taff | 70 |
| Cardiff | 67 |
| Blaenau Gwent | 66 |
| Bridgend | 65 |
| Carmarthenshire | 64 |
| Flintshire | 58 |
| Torfaen | 57 |
| Pembrokeshire | 56 |
| Neath Port Talbot | 56 |
| Caerphilly | 55 |
| Swansea | 53 |
| Vale of Glamorgan | 53 |
| Powys | 44 |
| Newport | 42 |
| Snowdonia National Park | 42 |
| Pembrokeshire National Park | 41 |
| Brecon Beacons National Park | 33 |
| Ceredigion | 29 |
| Monmouthshire | ** |
| **WALES AVERAGE** | **59** |
| Notes:<br>1. ** = no data available<br>2. All figures are rounded | |

**Table 8.3.** The speed of determining planning applications in Welsh planning authorities for the financial year 2006/2007
*Source: Survey of Welsh local planning authorities, April 2006 – March 2007 (Welsh Assembly Government, 2007)*

Average annual determination rates are not currently available. However, for telecommunications specific development, an indication of wider performance beyond the average rate within 8 weeks can be identified from the data collected as part of this survey (table 8.4).

| Year | Telecommunication full planning application determination rate (actual numbers) | | |
|---|---|---|---|
| | - 8 weeks | + 8 weeks - 13 weeks | + 13 weeks |
| 2007-2008 | 11 | 4 | 5 |
| 2006-2007 | 16 | 2 | 5 |
| 2005-2006 | 31 | 11 | 3 |
| 2004-2005 | 30 | 15 | 9 |
| 2003-2004 | 24 | 6 | 2 |

**Table 8.4.** The speed of determining telecommunications planning applications in Welsh planning authorities (excluding NPA) for the financial years 2003-2008

National performance figures for telecommunications development are also not available currently. If the prior approval procedure were removed however, the majority of telecommunications applications would be minor type. Notwithstanding the limitations of this sample group for direct analysis, the figures for this type of development suggest that in Wales, only 47% of all minor applications are decided within the eight week time period, although all applications for prior approval are determined within eight weeks (table 8.5).

| Application types | Percentage applications decided within 8 weeks of receipt |
|---|---|
| All | 59 |
| Minor* | 47 |
| Householder | 73 |

**Table 8.5.** Speed of determining planning applications for Wales for the financial year 2006/2007
*Source: Welsh Assembly Government (2007)*

* Does not meet the criteria for major development and is not of a type defined as Householder Development

The lack of comprehensive information from local planning authorities is an issue. However, based on the information which is available for the current performance of Welsh local planning authorities (tables 8.3, 8.4 and 8.5), it is reasonable to presume that the removal of the prior approval procedure would lead to an increase in the time required to determine telecommunications applications. This conclusion is supported by comments made during the interviews conducted as part of this study, with suggestions made that with the deemed consent arrangements removed, planning authorities may take longer to determine telecommunications applications. In some cases, this was justified on the basis that the local planning authority would be able to make better decisions, taking time to return to the applicant to secure improvements in design and siting. However, concern was expressed in Powys that there was potential for focus to be lost, applications to become delayed in inappropriate negotiation and debate, and decisions to take longer without improving the quality of decision-making. Essentially, one respondent thought that the current prior approval arrangements 'force' timeliness and efficiency in decision making.

Local planning authorities of Wales provided statistical information, allowing the performance of authorities in determining full telecommunications planning applications to be considered as a possible indicator of performance. The information provided demonstrates that performance is currently mixed (table 8.4). In 2003-2004, 75% of all applications were determined within eight weeks. In 2007-2008, only 63% of applications were determined within eight weeks, and in 2004-2005, 55% were determined within the eight week period. These figures are higher than the Welsh overall average for all applications (59% in 2006-2007), and the average for minor application determination, which stood at 47% in 2006-2007 (49% for the sampled authorities). This might suggest that decisions on full planning telecommunications matters do not take a disproportionate time to be determined in the context of Welsh local planning authority performance overall.

## 8.3 Decision making and appeals

Some indication of decision making by Welsh local planning authorities can be ascertained from the appeals allowed as a percentage of appeals against refusals, although further information is required to draw anything conclusive. Prior approval applications can be refused with a right of appeal afforded to the applicant. Table 8.6 shows that 65% of prior approval appeals were allowed, and approximately the same percentage of full planning applications for telecommunications. This shows a comparison of success rates between full applications (where more time is potentially available to ensure effective negotiation and decision-making) and the prior approval regime (where the decision is, to a certain extent, forced).

| **Telecommunications Appeal Type** | **Number determined (01/2001-03/2008)** | **Percentage allowed** |
|---|---|---|
| Prior Approval | 103 | 65 |
| Full planning | 39 | 67 |

**Table 8.6.** Percentage of appeals allowed in Wales according to PINS, Wales (including NPA authorities)

These findings suggest that local planning authorities are not disproportionately refusing submissions inappropriately due to the 56 day time limit, as a consequence of lack of time or pressure from the public. If this were the case, one would expect the percentage of appeals allowed to be higher for prior approvals showing perhaps that some local planning authorities might not want to make a decision over controversial applications for masts.

# CHAPTER NINE
# PART 24: DISCUSSION OF THE ISSUES

The regulations are outlined in chapters six and seven above, and arising out of responses from the research it is possible to analyse Part 24 in more detail, and where necessary, identify its shortcomings under four main headings:

- complexity of the language
- the prior approval procedure
- complexity of regulations
- illogicality of what is permitted development

## 9.1 The complexity of the language

All respondents from all sectors of interest raised issues about the difficulties of interpreting parts of the GPDO and a recurrent theme was a plea for it to be re-written in plain language. Examples were given of difficulties of understanding Part 24, such as double negatives, and references to items such as 'class A(a), and class A(c) in A.2, along with the use of many subsections. Such an example might be reference to Part 24, paragraph A.3 (5) (b) (i) relating to site display under the Wildlife and Countryside Act 1981(9) where other legislation which might also have to be applied in the consideration of applications. Planners from Newport Borough Council and Powys County Council drew attention to inconsistencies arising out of the language of Part 24, and One Voice Wales, the body representing community councils in Wales, considered that community council members and their constituents may not be familiar with the complex regulations. National Grid Wireless (Arqiva) suggested ways in which the wording could be changed to clarify the regulations, and in particular, they seek to amend the language regarding definitions of certain terms, such as 'antenna system', 'highway', 'roof slope', 'roof top mast' and 'wall'.

The procedures described in A.3 (8) regarding the prior approval procedure are generally thought to be written in the most confusing and overly complex language, which has led to considerable complaints, for example, to the Local Government Ombudsmen for England (2007). (The Ombudsman for Wales was consulted but declined to submit any evidence for this study).

## 9.2 The prior approval procedure

### 9.2.1 Public Perceptions

The issue referred to most often by all stakeholders and all respondents in the course of this research in one way or another is the prior approval procedure. It has already been suggested that the prior approval procedure creates mistrust between communities and government (Askew, 2004) due to misconceptions that telecommunications infrastructure does not need 'planning permission'. Some comments point to the fact that the perception of the public is that the prior approval arrangements engender an unhelpful planning environment for telecommunications, suggesting that the arrangements favour the developers over communities; and that they limit the ability of the community to engage with the planning process, due to more limited consultation. It was also pointed out that a lack of understanding of the

planning arrangements by councillors can lead to inappropriate use or incorrect interpretation of the regulations.

Other research into Part 24 (namely ODPM, 2003; apMobile, 2004; ODPM, 2006; Local Government Ombudsmen for England, 2007) suggests that the prior approval procedure is confusing – both in the way it is written (a language issue), but also in the actual procedure to be followed, which has resulted in a number of well-documented unintended consequences.

### 9.2.2 Procedure and the two stage process

The prior approval procedure is not unique to telecommunications, and it exists in planning law for agriculture and for demolition of residential buildings. (Vale of Glamorgan Council pointed out that the procedures under these other categories are very different to telecommunications). There is evidence that the operators understand the prior approval procedure very well, but interviews suggest that this knowledge is not always matched in local planning authorities. It is of some significance that following advice in supporting documents (Code of Best Practice, specifically the ten commitments), the amount of information submitted by applicants with an application for prior approval is the same as that which is submitted for a full planning application, since a series of templates was devised and is now used by all operators.

The prior approval procedure requires a 'two stage process', as outlined in the paragraph A.3 (3) which states:

> 'Before beginning the development, the developer must apply to the local planning authority for a determination as to whether prior approval of the authority will be required to the siting and appearance of the development'.

The first stage is for the applicant to apply to the local planning authority to seek a determination as to whether they want the applicant to apply for prior approval for the development. It is assumed that there needs to be a response: either the local planning authority responds to say it does not want to make a determination under the procedure, in which case the operator could erect the development; or the local planning authority responds to say that it does want to consider the application, in which case further regulations apply as to how they must proceed. Newport Council highlighted in interview a case in which they processed a prior approval application for the installation of telecommunications apparatus. Within the given 56 day period the authority gave the applicant notice that prior approval was refused. It did not, however, advise in this notice that prior approval was required – in other words, it did not follow the 'two stage process'. The applicant contacted the authority after the 56 day notice period to advise correctly that the lack of confirmation of prior approval being required, as well as being refused, effectively invalidated the notice, giving the development deemed consent by default.

Notwithstanding this, a Lawful Development Appeal Decision (APP/G5180/X/07/2041881) from England concluded that, although both notices should be provided in accordance with Part 24, the absence of notice that prior

approval is required does not necessarily invalidate a subsequent refusal of said prior approval.

The Mobile Operators' Association, O2 and Vodafone confirmed in their evidence that local planning authorities seldom follow the two stage procedure, which is overly onerous, and it is unusual for two written responses to be made. In reality, planning authorities proceed to determine the application for prior approval in accordance with Part 24, A.3 (5) to (6), as outlined in greater detail in section 9.2.3.

Part 24 states that any application (for prior approval or full planning permission) must be accompanied by the relevant a declaration of conformity with ICNIRP* guidelines. Under A.3 (5), and its many subsections, and certain procedures are laid down relating to site notices, consultation and the service of notices on land owners and adjoining owners.

### 9.2.3 Determination under the procedure: material considerations

A further question raised by respondents relates to the considerations that local authorities may use to determine an application for prior approval. Paragraph A.3 (6) states that:

> 'The local planning authority must take into account any representations made to them as a result of consultations or notices given under A.(3) when determining the application…'

It was considered by respondents that this is a source of further confusion for anyone trying to interpret it. In A.3 (3), developers are asked to apply under the prior approval procedure for a determination on 'siting and appearance' of the development. This raises many questions about what local planning authorities can comment on under the prior approval procedure, with some considering that the inclusion of paragraph (6) above confuses what they can legally comment on when considering an application for prior approval. Some guidance is given in Annex 1 to TAN 19, which states that materials, colour and design can be considered, as well as overall shape, solid or open framework, and the location of the apparatus in relation to the topography, landscape, skyline, existing masts or structures, residences or 'any other relevant considerations'. If the local planning authority is allowed to consider 'any representations' made to them, as stated in paragraph A.3(6), further explanation might be required to clarify this.

The reason that this results in confusion stems from a long debate over what constitutes a material consideration in planning law, and in relation to telecommunications generally (Askew, 2006). Campaigners against mobile phone masts, such as Gower Residents Against Mobile Masts (GRAMM), and other UK based lobby groups such as Mast Action UK, have long argued that the impact of a development on human health should be a material consideration, and that even the *perception* of a risk to health should be allowed as a material consideration. There is

* ICNIRP: International Commission on Non-ionising Radiation Protection as expressed in the EU Council recommendation of 1999 on the limitation of exposure of the general public to electromagnetic fields.

case law on this in relation to applications for mobile phone masts (see for example, a fuller explanation of some of these issues in Askew, 2006), but concerns remain about health, and it is the subject of correspondence to Assembly Members and local planning authorities.

Interpretation of the issues raised by the GPDO relating to material considerations and prior approval is provided in TAN 19 in Wales, Planning Policy Wales (Welsh Assembly Government, 2002) and in the Code of Best Practice (Welsh Assembly Government, 2003). Whilst it is not within the remit of this research to examine the wording or suitability of either of these documents, it is pertinent to explain the wording of TAN 19 and Planning Policy Wales in relation to consideration of health impact, and in as much as it is used to interpret Part 24.

In paragraph 41, TAN 19 refers to the prior approval procedure stating that a local authority is able to consider 'siting and appearance'. In respect of health considerations, paragraph 82 says that the Welsh Assembly Government, along with the UK Government, accepts the precautionary approach advocated by Independent Expert Group on Mobile Phones in 2000 (the 'Stewart Report', IEGMP, 2000). In paragraph 83, it reiterates instructions from the GPDO stating that it is a statutory requirement that all applications for prior approval and for planning permission must conform with the relevant ICNIRP guidelines. Paragraph 86 issues guidance to the effect that:

> 'local planning authorities should not seek to replicate through the planning system controls under the health and safety regime ' .

Panning Policy Wales (2002) states, in paragraph 12.13.7:

> 'Health considerations can be material considerations in determining applications for planning permission and prior approval as, in principle, can public concerns in relation to such effect Whether such matters are material in a particular case is ultimately a matter for the courts. It is for the decision maker to determine what weight to attach such considerations in any particular case.'

This has led to problems with interpretation.

### 9.2.4 Time limits: the 56 day rule

Paragraph A.3 (7) refers to time limits for making a decision, and has been the source of much confusion, resulting in a considerable number of court cases and complaints to Assembly Members. There have been accusations of operators flouting the law (Askew, 2004) and allegations of local authorities (in England) bringing the system into disrepute through difficulties of interpretation and inadequate implementation of the regulations (The Commission for Local Administration in England, 2007). The requirement upon local planning authorities is that they consider the application for prior approval 'within a period of 56 days', after which, it is acknowledged in TAN 19, if no refusal is received by the operator, permission is 'deemed to have been granted'. The main area of confusion regarding the 56 days is the question of when the start date is. Whilst it states that the start date begins with the date on which the

local planning authority received the application, much dispute has centred upon whether or not that day is day 0 or day 1. If the former, then the operator must in effect wait for 57 days to receive a letter of decision. This has been clarified in subsequent guidance (but not in the GPDO) to suggest that the day the application is received is day 1. (There is case law on this, see Askew, 2006).

This has resulted in many unintended consequences over the provision of telecommunications infrastructure, which in themselves are well documented and help to contribute to the difficulties that local planning authorities have in interpreting the GPDO (see other research reports referred to above). This could create an atmosphere of mistrust between communities, the industry and Government. Consequences include, for example, the late sending out of letters notifying the operator of a decision to refuse prior approval, which might not arrive until after day 56, in which case the operator will assume that permission is granted and will proceed with the erection of the mast; difficulties in taking controversial applications to committee due to committee cycles which cannot be accommodated within the time; a perception that a council might rather refuse a controversial application so that the decision can be made on appeal by the Inspectorate; a view that a better solution might be found on design and siting if the council could take longer to negotiate with the operator; a number of costly court cases around the time limit and the commencement date. Mast Action UK has suggested that if the prior approval procedure is to remain in Part 24, the time limit should be extended to 63 days to allow local authorities more time to prepare the documentation, although many interviewees were of the opinion that an extension might not make any difference and local planning authorities could still err with regard to timescales. Another consequence commented upon by One Voice Wales is that due to limited time scales and the urgency of determination, applications for prior approval do not come before community councils in Wales, whereas applications for full planning permission do. This can result in the first time some communities know about a mast is when it is erected. Planning officers in Bridgend reported that enquiries from the general public in respect of a prior approval application can continue long after the development has been granted permission with ensuing resource implications and community dissatisfaction.

### 9.3 Complexity of regulations, including matters of interpretation

Whilst the GPDO outlines what is permitted development, there remain numerous questions. Interviews suggest that local authorities in Wales are inconsistent in the way they approach telecommunications applications, much of this arising out of differential interpretation of the regulations. Equally, the MOA suggested that planning inspectors, relying upon the telecommunications policy, can also be perceived to be making inconsistent decisions.

One question that arises over the regulations is the extent to which they give the power to local authorities to control developments, even when they are permitted development. It was pointed out by National Grid Wireless (Arqiva) that whilst Part 24 confers permitted development rights upon a list of defined developments, in certain cases it is not without conditions. Paragraph A. 2 (1) of Schedule 2 of Part 24 of the GPDO has been the cause of at least one enforcement appeal. In the case of Hutchison 3G UK Ltd and Southend on Sea Borough Council, an enforcement notice

was served alleging that the operator (Hutchison 3G UK Ltd) had not complied with the condition in paragraph A.2 (1), which requires that,

> 'development is permitted subject to the condition that any antenna or supporting apparatus, radio equipment housing or development ancillary to radio equipment housing constructed, installed, altered, or replaced on a building in accordance with that permission, shall, so far as practicable, be sited so as to minimise its effect on the external appearance of the building'.

In the event of permitted development not complying with this condition, enforcement action can be taken and this was upheld on appeal in the case referred to above (Southend on Sea).

Operators allege that this allows for a greater degree of control by local authorities and it is cited by them in support of not making the regulations more restrictive, although they admit that this paragraph is seldom applied to permitted development by local planning authorities, and there is evidence that it is not readily understood. Further opportunity for restriction is given to local authorities through the possible imposition of an Article 4 direction (under GPDO, 1995), but this is unusual (Local Government Ombudsmen, 2007).

There is confusion over the cumulative impact of more than one development, and Vodafone has taken legal advice on the issue of whether or not the provision of more than one equipment cabinet (radio equipment housing) is permitted development. Whilst they are often provided using permitted development rights, a local planning authority could deny that the rights exist for multiple cabinets to support multiple masts. There is a question over what kind of development is 'development ancillary' to radio equipment housing, and this might include the means of access to the mast.

PINS said that there can be confusion over the height of a mast and what constitutes fifteen metres – whether it includes the plinth upon which it is built, for example, and the extent to which the headgear should be included. There has been confusion over what constitutes a 'mast', or 'antenna' or 'small antenna', along with the use of phrases such as 'telecommunications apparatus' and 'radio equipment housing', although these terms are defined in A.4 'Interpretation of Class A'.

Paragraph A.3 (8) refers to any amendments of the details, and operators suggested that the rules concerning minor amendments need much clearer guidance.

### 9.4 Illogicality of what is permitted development

Many respondents pointed out that the GPDO is illogical in what it classes as permitted development in respect of telecommunications infrastructure. National Grid Wireless (Arqiva) and Vodafone allege that whilst some rooftop developments which are less than 4 metres in height are permitted, any means of disguise (shrouds around antenna, for example) would not be permitted development, discouraging better design. This might apply to a chimney pot for example. Whilst other Government guidance encourages mast and site sharing, the operators consider that the GPDO as written does not encourage this, nor the utilisation of existing structures in the landscape for the placing of antennas. National Grid Wireless (Arqiva) suggest that

existing large structures such as pylons and gasometers are treated in the same way as buildings in respect of permitted development rights, making it less attractive to use them than might be the case. Other examples are given of this which will be discussed in more detail under the options below.

# CHAPTER TEN
# ANALYSIS AND DISCUSSION OF THE OPTIONS

## 10.1 Introduction

The research specification for this review of telecommunications code system operators permitted development rights required an assessment of a series of options and a set of questions was designed to test them. The options emerged out of the study, including from the literature review and previous published research; responses in writing to the consultation exercise; in-depth interviews with a cross-section of stakeholders; and discussions held by the inter-disciplinary research team. As a result, an exhaustive continuum of options ranging from total regulation to total de-regulation is tested. One option, to make no change to the existing regulations, is also considered.

Each option is tested against a series of impacts, as requested by the Welsh Assembly Government, namely: technical, economic, safety and legal. Additionally, the potential environmental and social impacts are considered. Furthermore, each option is tested for the potential impact on electronic code operators under regulations contained within Directive 2002/21/EC of 2002 on a Common Regulatory Framework for Electronic Communications Network and Services (Framework Directive).

The research specification stipulated a review of mobile phone operators' permitted development rights. Any changes to the GPDO must, however, take into account the impact on the 150 electronic code operators[*], whose activities are covered by Part 24, and who could therefore potentially be affected by any changes to the regulations. As a consequence of this wider interpretation, this research has taken account of the views of National Grid Wireless and Arqiva who responded to say that they are involved in providing the *infrastructure* for mobile phone masts and other types of mast, including television transmitters, which are being brought up to date for digital switchover. Wales is one of the first areas of the UK to benefit from this new form of TV provision, entailing altering and modernising up to 200 television transmitters (National Grid Wireless, 2006). It is true that these masts and other similar infrastructure seldom raise the kinds of issues related to mobile phone masts, mainly due to public fears over emissions, specifically from the latter. Because most of the literature and the research already carried out concerns mobile phone masts, they are referred to most frequently in this report.

The specification originally made by the Welsh Assembly Government included six options for study, and these are included in Appendix A (specification for research contract). However, the research team, having consulted the client, devised a slightly different set of options, which in their opinion, represents an exhaustive list, and which offers some opportunity for the creation of different details within each. It was felt, for example, that option B (see Appendix A) would not be practicable due it referring only to mobile phone operators' masts, when Part 24 refers to other types as well.

[*] A full list of electronic code operators is available at Ofcom's website http://www.ofcom.org.uk/telecoms/ioi/e_c_c/cp_reg

The five options are:

1. Complete regulation: removal of Part 24 altogether (no permitted development, no prior approval).

2. Partial regulation: remove prior approval, amend permitted development rights, with a greater or lesser requirement for full planning permission; clarify the wording of Part 24.

3. Do nothing: retain existing permitted development rights and the prior approval procedure as outlined in Part 24 of the GPDO of 1995, as amended in 2002 (Wales).

4. Partial de-regulation: retain the prior approval procedure, and amend some aspects of what is permitted development to a greater or lesser extent; clarify the wording of Part 24.

5. Complete de-regulation: all telecommunications infrastructure is permitted development.

Each will be considered in more detail. The legal impact on the framework agreement is broadly similar for all options, and so is reported separately below. Where different legal implications pertain, they are included under each option.

### 10.2 General legal implications

The brief required the researchers to investigate any legal impact in relation to any discriminatory implications with regard to Directive 2002/21/EC of 7 March 2002 on a Common Regulatory Framework for Electronic Communications Network and Services (Framework Directive), as well as domestic public law principles.

As long as there is no inadvertent distortion of the market, and thus breach of the above directive, none of these options would raise significant legal issues. On this basis, the legal implications are discussed without reference to the individual options.

As it stands there is no statutory requirement for a regulatory impact assessment (RIA) under the existing regime. However emerging Welsh policy is that all statutory instruments should undergo an RIA. If changes are made to the regulations, a cost - benefit analysis would need to be undertaken as part of the RIA. This would assess the value of the proposed changes (see for example, the interim regulatory impact assessment carried out in 2000 by the Northern Ireland Department of the Environment's review of Planning Policy Statement 10 on Telecommunications). Such analysis should not be merely financial but seek to incorporate wider economic, social and environmental considerations, which should be monetarised as far as possible. In addition, as part of the RIA, any extra administrative burden should also be identified.

### 10.2.1 Competition law implications

The telecommunications market is a regulated sector. There is a sizeable quantity of European Union legislation which establishes EU-wide regulation seeking to harmonise the market for telecommunications provision. The current laws which govern the telecommunications sector were agreed in 2002, and include six European Directives and one European Regulation. Whilst the research brief required the options only to be tested against one: Directive (2002/21/EC) on a Common Regulatory Framework ("the Framework Directive"), there are five other directives and one regulation which could apply: Directive (2002/19/EC) on access and interconnection; Directive (2002/20/EC) on the authorisation of electronic communications networks and services (the Authorisation Directive); Directive (2002/22/EC) on universal service and users' rights relating to electronic communications networks and services; Directive (2002/58/EC) on privacy and electronic communications; Directive (2002/77/EC) on competition in the markets for electronic communications services; and Regulation (2000/2887/EC) on unbundled access to the local loop.

The key principle enshrined in the legislation is that in the internal market, telecommunications operators and service providers have the right to set up and offer their services throughout the European Union. While it is theoretically possible for the planning process to be a part of the regulatory regime for the market, European legislation has focused on member states' regulators as promoted by Article 8 of the Framework Directive. In particular it sets out that part of the regulator's function is:

> 'ensuring that there is no distortion or restriction of competition in the electronic communications sector' (Article 8 (2)).

Control of the market is therefore firmly within the ambit of member states' regulators rather than the planning process.

It is recognised that the planning process has a role to play in the siting of installations associated with the telecommunications network. Indeed, it is acknowledged in the Framework Directive that European networks should be designed to assist town and country planning:

> 'Facility sharing can be of benefit for town planning, public health or environmental reasons, and should be encouraged by national regulatory authorities on the basis of voluntary agreements' (Recital 23).

The Framework Directive establishes special rules where stringent planning requirements have a potential to distort the market and lead to anticompetitive behaviour:

> 'In particular where undertakings are deprived of access to viable alternatives because of the need to protect the environment, public health, public security or to meet town and country planning objectives, Member States may impose the sharing of facilities or property (including physical co-location) on an undertaking operating an electronic communications network or take measures to facilitate the coordination of public works only after an appropriate period

> of public consultation during which all interested parties must be given an opportunity to express their views. Such sharing or coordination arrangements may include rules for apportioning the costs of facility or property sharing' (Article 12 (2)).

The member state is therefore to encourage mast sharing, in the event of adverse town and country planning, or encourage the development of publicly funded infrastructure. In either case it seems that the planning process would remain outside the ambit of specific telecommunications law. The European market should adapt to the planning regime and not the other way around.

This approach permeates the remainder of the EU telecommunications legislation, for instance the Authorisation Directive (Directive 2002/20/EC) establishes the terms and conditions which a member state may require before an operator can supply telecommunications provision. At Condition 5 of the Annex to the Directive, it settles that any licence should be subject to the terms of town and country planning.

It should also be noted that, because of technological developments within the sector, there are proposals from the European Commission to significantly alter the existing regulatory mechanisms for the telecommunications sector. In addition, the Commission has noted that the market has developed in a fragmented way and that there are few pan-European operators (European Commission, 2008a and 2008b). The key proposed change is the development of a new European regulator to oversee the development of the European market, and even in the event of substantive changes to the law itself, the deferral of the telecommunications market to the planning process remains an established principle in the draft legislation which will enact the proposed changes (European Commission, 2007).

This does not mean to say that the planning system need pay no heed to EU law on the subject. The leading case is that of R v Secretary of State for Transport ex parte Factortame Ltd (no.2) where the Merchant Shipping Act 1988 had been used to restrict the development of the market by discriminating against other EU members, and excluding their citizens from the British merchant shipping register, to protect British fisheries interests. In the event the European Court of Justice found against the UK for failing to allow citizens of other EU member states freedom to establish their businesses in the UK. The result was that the relevant section of the Merchant Shipping Act was disapplied. If the UK planning system is being used as a trojan horse to favour UK enterprises, then the system would conflict with EU law. In the course of the research no evidence has been uncovered that this would be the case to date or that the implementation of any of the options would be in breach of European rules of the freedom to establish discussed in the Factortame decision. As a result, even if it is uncovered that any changes to the planning system favour one operator at a later date, it is expected that these would be resolved by alterations to the licensing system by Ofcom (see below) rather than through legal challenge to the planning process.

### 10.2.2 Other legal issues arising from European law

Town and country planning is largely independent from issues of competition law. Competition issues are likely only to arise if it can be shown that the planning process is being used to distort the market, and that it would involve a deliberate attempt to exclude other member states' operators via the use of the process to exclude them. Limitations by town and country planning legislation on the development of the communications market are acknowledged within the body of established and proposed EU law. Competition aspects are usually dealt with by the domestic telecommunications regulator, the Office of Communications (Ofcom in UK).

With regard to the stated options, none of them would appear to raise significant issues in respect of EU law. There seems to be a tacit understanding that town and country planning restrictions may require mast sharing. The implication is therefore that it is appropriate for town and country planning requirements to be in place for telecommunications equipment, thus leading to a presupposition against Option 5 which is for no regulation.

### 10.2.3 Domestic public law principles

Telecommunications are regulated under the Communications Act 2003, which creates the UK regulator specified by the Framework Directive, the Office of Communications or Ofcom. Ofcom's duties extend to Wales by virtue of s.1(6)(b) of the Act.

Ofcom's duties are set out in s3(1) of the Act:

> a) to further the interests of citizens in relation to communications matters; and
>
> b) to further the interests of consumers in relevant markets, where appropriate by promoting competition

It is Ofcom's responsibility, to assess the interests of further competition in the UK sector. Unsurprisingly, in such a fast developing sector, there are many concerns about development of the UK telecommunications market. Ofcom publishes a report into the communications sector annually[*]. Despite developing extremely comprehensive reports, the last three years' reports contain no reference to town and country planning issues adversely affecting the operation of the market and as a result it can be concluded that the current operations are not raising noticeable competition issues. Ofcom does recognise limitation issues concerning masts for broadcast media (Office of Communications, 2005) but this seems to reflect their acknowledgment of the requirements of the planning process rather than any attempts to suggest that the planning process is, in itself, anticompetitive.

It should also be noted that Ofcom regulates the Scottish market under s 1(6)(c) of the Act, where a different planning regime is in operation. The absence of any recognised competition issues stemming from the divergence of the two processes seems to imply

[*] The '*Communications Market Report'* and regionally *'The Communications Market: Nations and Regions'* (Office of Communications, 2007 and 2008b)

that if Wales developed its own planning process, this would not raise competition issues. There is no concerted call from Ofcom to remove planning restrictions.

Section 59 of the Town and Country Planning Act 1990 permits the establishment of and changes to the general permitted development order by the Welsh Ministers. The development order establishes permitted development rights and the current prior approval procedure.

### 10.3 Impact analysis and detailed discussion of the options

This section provides a detailed impact analysis of each proposed option. A table summarising is included which is used and should be read as an attempt to organise and summarise the impacts as costs and benefits. Whilst this gives a very general idea at a glance of what the outcomes could be, it makes no attempt to add weight to the costs and benefits. It is included, however, as an attempt to show impacts, and the weight to be accorded to each is partly a political decision for the Welsh Assembly Government.

**Option 1**
**Complete regulation: removal of Part 24 altogether (no permitted development, no prior approval).**

Option 1 removes Part 24 of the GPDO altogether; there would be no permitted development rights and no prior approval procedure - every development would require full planning permission. There is a model for this option. Northern Ireland introduced fuller planning controls over telecommunications as an early piece of legislation under the newly devolved powers. All permitted development rights were removed, and full planning controls for new masts, plus any alterations or replacements to existing masts were introduced. This arrangement did not interfere with the established principle of *de minimis* which covers minor developments and which, in relative terms, are not considered to have a material effect on the building or structure on which they are installed. In Northern Ireland the policy is outlined in Planning Policy Statement (PPS) 10, accompanied by Development Control Advice Note 14 (Department of the Environment, 2001 and 2008 respectively).

This option was suggested by One Voice Wales and by the Welsh Local Government Association in its evidence to the Welsh Assembly Government in 2006. No other consultee advocated the *complete* removal of Part 24, and the impact of such action would be as follows:

Technical Impact
Emerging technologies suggest that future provision will increasingly see the convergence of mobile phone networks, broadcast networks (TV and Radio) and Internet Protocol (IP) computer networks, and this might be particularly important in rural areas where coverage is low. There is evidence that future technologies will operate with smaller sized equipment, which will have an impact on the total number of cell sites, and the greater use of micro cells and pico cells to offload capacity from macro cells (evidence from telecommunications expert). This will inevitably lead to an increase of radio base stations but they are likely to be much smaller and in most cases unobtrusive. A removal of permitted development rights would require full planning permission for some very small pieces of apparatus, with potentially very little visual impact, as well as for the upgrading of existing antennas . Whilst there would be more control on the proliferation in the number and density of small devices, the amount of control suggested by Option 1 might not be proportional to the impact of the development, and this causes concern to the operators. Interviewees in local planning authorities stated that many planning officers do not have the technical expertise to understand telecommunications developments. A requirement for planning permission for all development would require even greater levels of expertise than that which prevails, and may suggest that more training is required for local authority planners.

Wireless and cellular networks experience a constant cycle of both business and technology innovation and evolution. It is clear that technology evolution will see continuous installation of new types of antennas, radio base stations and the rollout of new types of networks. This will not necessarily mean a large increase in the number of mast cell sites, but different means of provision which might encourage an increase in mast and site sharing. A requirement to gain planning permission for each might encourage more sharing, but it is more likely to make the regime so difficult for

operators that they do not pursue the roll out in remoter areas. In urban areas, applications would be numerous. The operators allege that permitted development is needed to assist the continuous cycle of upgrades and replacements at base station sites. The relevant policy guidance in Northern Ireland (Development Control Advice Note 2008) explains the need for extra base stations due to changing technology, but the interviewees did not raise this as creating additional siting and design impacts.

Telecommunications infrastructure is vital for the emergency services, which is provided under the TETRA system. Part 24 also allows for emergency erection of equipment, and the Welsh Local Government Association expressed concern that its complete removal might take away the ability to provide emergency telecommunications at the scene of a disaster (major flood, for example), or for the upgrading of the TETRA system.

Economic Impact

The operators, the CBI, the MOA, PINS and many local authorities agree that good communication infrastructure is a key requirement for any nation. The operators are committed to retention of the prior approval procedure along with a series of permitted development rights, and argue that Option 1 will hinder their business. A removal of all permitted development rights has the potential to impact upon the ability and willingness of operators to justify investment in rural areas. They have indicated that provision is more expensive, and demand is obviously lower due to dispersed populations. The operators and the CBI are concerned about the impact that *any* reduction in permitted development rights would have on investment in rural Wales, as competitive advantage for business is shown to be lessened by reduced access to information technology (CBI 2008). If it became necessary to apply for all apparatus, this could be costly to the industry, reducing the certainty that they need to plan for and implement the whole network. Now that the terms relating to coverage throughout the UK are met, there is a concern that the rural areas of Wales could be ignored by the operators. There would be an increased cost to the industry due to planning application fees.

Some respondents, including PINS, suggested that there is no need for privilege (under prior approval procedures) to be afforded to this industry, as the networks have now been rolled out in accordance with the licences. (However, it should be acknowledged that the terms of the licence insist upon 80% coverage of population, and this leaves great areas of rural Wales with no coverage at all, or provision by less than five operators. Maps provided by Ofcom (2008b) illustrate the extent of coverage in Wales (see Fig. 4.1). The impact on local planning authorities could be an increase in the number of planning applications for some minor developments, along with an increase in planning fees (and income), although evidence suggests that applications are falling at present. Proportionality could be an issue, and this is a concern for some local authorities, who might consider that they would be dealing with many more small applications for minor development with little impact. Additionally, it is pointed out that many are short staffed due to the shortage of qualified town planners, and it would add to their burden. Option 1 may result in a need to appoint more specialist planning officers (who do not necessarily exist). A fuller investigation of the impact of increasing the number of planning applications is contained under Option 2 below, but local planning authorities were consistent in their view that some permitted

development rights were appropriate to ensure both proportionality and a manageable workload.

The planning system in Northern Ireland is currently under review and this has drawn attention to inefficiencies and delays in the system (Lloyd, 2008). The processing of telecommunications applications is caught up in this systemic agenda. The interviewees did not perceive the arrangements for the telecommunications sector as particularly problematic and a considerable improvement on the earlier (prior approval) arrangements. Nathaniel Lichfield's (2003, 143) review of permitted development rights identified that the prior approval process was 'universally disliked except by the operators themselves' and that the 'removal of the previous, more extensive permitted development rights did not result in a dramatic increase in planning applications'. No figures were collected to update this finding nor to differentiate performance relating to telecommunications. Nathaniel Lichfield (2003,144) reported that both the Planning Service and operators considered there might, under certain circumstances, be 'scope to introduce permitted development rights for the erection of additional equipment onto an existing mast' and that this might significantly reduce the workload of the Planning Service and encourage site sharing amongst operators. A wider review of permitted development rights in Northern Ireland is ongoing as part of the wider reforms.

Safety

The impact of Option 1 on safety is that the local planning authority would have to scrutinise more ICNIRP certificates than currently is the case. Safety could be compromised if operators chose to disregard the law due to the difficulties and delays in getting permission for upgrades and 'swap outs' of antennas (removing old technology and replacing with new, with insignificant change to size, dimensions, visual impact etc.). This has not been reported in Northern Ireland. Vodafone reported that this was a common occurrence in Spain, where the regulations were so complicated many masts go up without permission. This would remove the opportunity for scrutiny of the ICNIRP certificate. Experience in Northern Ireland suggests that the health concerns have not gone away, despite the fact that all developments need permission.

Legal Impact

The UK Government is of the view that regulation has an adverse impact on economic competitiveness, and has been striving to seek a balance between economic competitiveness and social and environmental sustainability. Option 1 would result in Wales and Northern Ireland being more regulated than the other devolved administrations, and this is allowed under devolved powers. The operators suggest that this could reduce investment in those nations, but to date, there is no evidence that this has happened in Northern Ireland. Furthermore, whilst it would be unfair to suggest this has ever happened, or that it would necessarily happen, the difficulties and delays in the planning system due to overloading with planning applications for small developments, (eg. for the upgrading of antennas) might lead some operators to disregard the law, and provide without permission. There could be more legal challenge on what constitutes 'de minimis', as operators strive to find ways of delivering the infrastructure without the need for planning permission. There is evidence that operators do not hesitate to make legal challenges to clarify aspects of planning law, such as Vodafone's challenge to the status of permitted development

rights for equipment housing. Planning Policy Wales and TAN 19 would have to be re-written.

Environmental

In environmental and visual terms, this option allows for greater control by local planning authorities on the visual impact of the development. Whilst local authorities would have more time in principle to consider the application (ie. longer than 56 days if they so need), in practice, they might be inundated with minor applications giving less time for the careful consideration of each. A group known as PLACE, working for the Forestry Commission and the Natural England, lobbies as well for better design of telecommunications masts in Wales, especially in rural areas. They argue that the potential exists to use existing structures more, and improve design generally. Local authorities suggest that the 56 day rule under the prior approval procedures does not allow for discussion of design matters, but since so many base stations are now in place, there is ample opportunity for operators to share and re-use what already exists. Policy guidance of the sort already provided by Flintshire, for example, might have to be more extensively provided, and the Welsh Assembly Government might want to provide new national guidelines on visual impact, along with a request for visual impact assessment in some cases.

Social Impact

The operators, the MOA and local authorities reported that demand for mobile telephony is high in rural areas especially where coverage is non-existent. One such area lies to the west of Denbigh in North Wales, and although there is no current identified business need there, Denbighshire County Council has pointed out that there is a social need and demand from residents, and coverage might encourage commercial investment. Any options which hinder the rollout of information technology are not likely to be welcomed by communities such as those in rural areas where coverage is an issue.

Consultation requirements are laid out in the GPDO but the industry has gone further in creating mechanisms for consulting with the general public over the rollout of the network (in its annual rollout plans, for example), in the Code of Best Practice which outlines the 'traffic light model' and other templates for dealing with community concerns, such as that described in the MOA's document 'Working with the community'. Whilst community groups such as GRAMM in Wales, and One Voice Wales suggest that consultation is insufficient, a requirement for full planning permission might cancel out the attempts already made to involve the public as much as possible. The weight of consultation could be considerable and it may be that the operators or the local planning authorities could not cope with it. The option to require regulation of all developments would heighten awareness of the issues, and could lead to more protest about masts, further adding delay to the determination and hence the investment. If it results in companies being less likely to update the systems where they do exist, that could hinder social development and networking, especially in broadband provision.

In Northern Ireland, whilst the decision to regulate telecommunications was taken to guarantee better consultation, and to enable discussion of the material considerations such as health, there is no evidence that the ability to deal with health concerns has been removed, suggesting that other measures are necessary to deal with this.

Table 10.1 provides a summary of the impacts, including costs and benefits.

| Options | Impacts | | | | | |
|---|---|---|---|---|---|---|
| | **Technical** | **Economic** | **Safety** | **Legal** | **Environmental** | **Social** |
| 1.<br><br>Complete regulation: removal of Part 24 altogether, no permitted development, no prior approval. | **Costs**<br>-could hinder the rollout of new technological advances;<br>-would require many applications for small antenna which are likely to be the future of telecoms;<br>-could prevent minor upgrades which currently have little visual impact.<br>**Benefits**<br>+technical impact might be low due to lower numbers of developments and smaller sized infrastructure;<br>+could encourage mast and site sharing. | **Costs**<br>-could prevent investment in new telecommunications technology due to higher costs;<br>-impact on competitiveness of business;<br>-burden of cost on code operators for planning fees and administrative costs; --increased burden on local planning authorities in dealing with more applications;<br>-could prevent proper consideration of other applications and cause delay to decisions<br>-potential delay in roll out;<br>-extra resources to deal with public interest for industry and Local planning authorities, including | **Costs**<br>-safety would be compromised if operators chose to disregard law due to difficulties and delays in getting permission for upgrades and swap outs of antennas .<br>**Benefits**<br>+LPA would scrutinise the ICNIRP certificate for every minor development. | **Costs**<br>-Wales and Northern Ireland would be more regulated than other devolved administrations in the UK;<br>-would need a Welsh Encyclopaedia<br>- Government is attempting to de-regulate to assist economic competitiveness;<br>-difficulties and delays in planning system for the upgrading of antennas might lead some operators to disregard law;<br>-there may be more legal challenge on what constitutes 'de minimis'<br>-Planning Policy Wales and TAN 19 would have to be re-written;<br>-RIA required. | **Costs**<br>-Planning Policy Wales and TAN 19 would have to be re-written;<br>-some proposals would need visual impact assessment;<br>-Local planning authorities might not have time to consider better design options.<br>**Benefits**<br>+greater control by local planning authorities on environmental and visual aspects.<br>+allows for more environmental guidance and visual impact assessment. | **Costs**<br>-higher awareness amongst communities of new mast infrastructure may increase protest, delaying rollout of networks further;<br>-more regulation might reduce investment in areas of low coverage to social disadvantage;<br>-health concerns may not vanish;<br>-may be less consultation due to numbers of applications.<br>**Benefits**<br>+higher community confidence in the planning system;<br>+perception of greater control. |

| Options | Impacts | | | | | |
|---|---|---|---|---|---|---|
| | Technical | Economic | Safety | Legal | Environmental | Social |
| | | more experts;<br>-policy guidance would have to be more comprehensive.<br>**Benefits**<br>+increase in LPA fees. | | **Benefits**<br>+would not create disadvantage between code operators so no impact on EC directive;<br>+requirement for RIA;<br>+no ultra vires. | | |

**Table 10.1.** A summary of the impacts, including costs and benefits, of Option 1

**Option 2**
**Partial regulation: remove prior approval, amend permitted development rights, with a greater or lesser requirement for full planning permission; clarify the wording of Part 24.**

The partial regulation of telecommunications shares some of the impacts with Option 4 (see below), but the main difference is that in Option 2, the prior approval procedure is removed, accompanied by amendments to permitted developments, requiring full planning permission for more developments. The exact nature of what will be classed as permitted development, i.e. the details of dimensions, is for determination by the Welsh Assembly Government at a later date. Many respondents made suggestions for this option, and one such model, the Scottish model was tested with consultees. Even if more development is permitted, the operators would view this option as one of greater regulation.

Opinion on whether or not the prior approval procedure should be removed is divided, although all respondents agree that current system does not work well, for the reasons cited elsewhere in this report. The MOA and all the operators are absolutely adamant that the prior approval system should remain. Other respondents, including PINS, Welsh Local Government Association, Vale of Glamorgan Council, Newport Borough Council, One Voice Wales, PLACE, GRAMM, Mast Action UK (MAUK), and Torfaen Council along with the local authorities who participated in the focus group on 23 October 2008 (see list in Appendix F and G) were all in favour of removing the prior approval procedure, citing issues as outlined elsewhere in this report.

Assuming that the prior approval procedure is removed, the question is what would constitute permitted development. This might shift all the developments which now need prior approval to require planning permission; or the removal of the prior approval procedure might also offer the opportunity to clarify or modernise permitted development rights. Various respondents have made suggestions with regard to what should and should not constitute permitted development under an amended GPDO in which the prior approval procedure is removed. Most of the suggestions relate to a de-regulation of Part 24, and they will be considered under Option 4 below.

In order to support an understanding of this option, further research was carried out into the regime in Scotland. Although the Scottish model has been tested with some consultees, Option 2 offers many opportunities to amend the current permitted development rights as well. In Scotland, the development requiring planning permission is as follows:

**Summary of Development Requiring Planning Permission in Scotland**

A new ground based mast;

Alteration or replacement of a mast which increases its height by 2m or 1m horizontally;

On buildings over 15 metres in height:

- equipment housing over 3m in height or 30 cubic metres in volume;
- any antennas over 2.8 metres in height or 1.3m measured horizontally;
- any antennas taken together with any supporting apparatus more than 4 metres in height;
- more than 8 antennas;

On buildings not over 15 metres in height:

- equipment housing over 3m in height or 30 cubic metres in volume;
- any antennas over 0.9m in any direction;
- more than 4 antennas other than "small antennas";
- more than 8 "small antennas";

On dwellings:

- any apparatus other than "small antennas";
- more than 2 "small antennas".

Development on a category 'A' Listed Building or a Scheduled Monument, including their setting;

Development in areas of natural and built heritage of national or European importance.

*Source*: Scottish Executive (2001b) NPPG19: paragraph 8

Whilst this represents an adequate model, there may be some variations upon it which a more detailed examination might reveal could be altered, such as in relation to what will happen in future as new technologies emerge. For example, the MOA, Vodafone and NGW point out that in certain circumstances shrouds on roof tops could be permitted development as this would enhance visual appearance through the disguise of some rooftop antennas; PINS suggest further guidance on the diameter of headgear for monopoles; and PLACE show examples of the use of *real* trees for antennas.

Technical Impact

It has been stated that Part 24 has to be 'technology-neutral', so that it does not go out of date rapidly, and so that any amendments to it must endure for several years at least. National Grid Wireless/Arqiva and Logicalis stated that any new regulations should not introduce differential rules for mobile phone infrastructure and the apparatus provided by other code operators. In other words, by making it more difficult to provide mobile phone masts through a revised part 24, the regulations

should not hinder the provision of infrastructure by other licensed code operators (digital television, for example), nor should they conflict with EC regulations on competition.

One activity which is likely to increase is the sharing of masts, and it is worth exploring the impact of a changed permitted development rights regime on this. Denbighshire County Council and Torfaen Council suggested that there should be some way in which operators should be forced to share masts in some rural areas (although this might conflict with the EC directive on competition law). The sharing of masts is encouraged in all policy documents. Typically, network operators share a physical site such as a tower or the top of a building, and mast sharing upon which antennas can be fixed is common, although there are technical constraints relating to radio interference. Network sharing (roaming) would reduce demand for more masts, but until recently, this has not happened in the UK due to the terms of the original 3G licences. There has been criticism that this did not encourage sharing due to commercial competition – that it did, in fact, encourage the proliferation of masts. There is ample evidence of groups of masts – monopoles along a roadside, for example, each with their own equipment housing. It may be that the prior approval procedures and the slightly more permissive regime for telecommunications roll out worked against sharing of sites or masts. The procedures encouraged operators to plan their own networks, and apply for permission as rapidly as possible in order to gain advantage over other operators in the race for coverage.

The situation is changing, and there is evidence of more sharing. Reasons for this are uncertain and might partly be due to the economy – many of the areas (usually rural areas) where there is low or no coverage are more expensive to service. Operators suggest that it is difficult to find sites, and a more restrictive planning regime would hinder this even further. However, infrastructure providers such as National Grid Wireless and Arqiva, who alone own more than 10% of all tower sites in the UK, in addition to pylons (which can provide a base for antennas ), are able to offer opportunities for sharing. They could benefit from a more restrictive regime, which might force more sharing. Policy requires operators to consider alternative sites in order to find the optimum site, which has been the subject of court challenges in the past. Mast sharing is becoming more formal - in 2008, Vodafone and FT Orange announced a plan to share mast sites, where radio base station equipment will be co-located at sites and will include both GSM and 3G coverage. The prediction is that they will be able to cut cell sites numbers by 15 per cent which will equate to 3,000 fewer masts in the UK. The cumulative impact of mast sharing must be taken into account in the planning regulations, and the legislation will have to continue to allow for a statutory requirement of compliance with ICNIRP guidelines when antennas are upgraded or swapped.

Network roaming is also starting to happen in the UK, now with the formation by T-Mobile UK and Hutchison 3 UK of a new joint company called MBNL (Mobile Broadband Network Limited) which shares the complete radio access network. If more sharing is an emergent feature of the industry, then the views of PINS and the WLGA suggesting that the prior approval procedure is not so important as it has been in the past, may be correct.

The emerging technologies suggest that there will be a large increase in much smaller base stations, many of which will be de minimis, not requiring any permission, such as small pico and femtocells, the latter being provided within buildings, and outside planning control. Evidence suggests that there will always be demand for macro cells, and a continuing demand to upgrade and maintain them. The extent to which upgrading will be hindered by a more restrictive regime can be questioned, but with the retention of some permitted development rights, an overly restrictive regime can be avoided. This is the case in Scotland, where the research identified that the policy guidance acknowledges the dynamic and innovative nature of the technology and the need to facilitate equitable access to the latest technologies as they become available. In a comprehensive audit and review of the GPDO, Prior (2007) noted that, in Scotland, telecommunications

> 'provide the clearest instance of the GPDO being modified to keep up with evolving technology and the public response to it', implying that such modifications would not have adverse technical impact'

The operators, the MOA and infrastructure providers such as National Grid Wireless and Arqiva, remain firmly committed to the prior approval procedure, stating that any attempt to remove it will hinder the ongoing need for minor upgrades, and create delay in the roll out of new technology. No other technical reasons are given in the evidence for retaining the procedures.

Economic Impact

In economic terms, the operators and the infrastructure providers would prefer a consistent approach and the same regulations across the devolved administrations in the UK as this reduces their interpretation and administration costs. However, it must be noted here that there are already three different permitted development regimes in the UK, and a change of the Welsh Part 24 to bring it in line with the Scottish one would not alter that situation.

The main reason given by operators and the MOA, for not removing prior approval procedures is an economic one. In particular, they state that there is a need for certainty in their investment plans and for their business model. The CBI agree, as they consider that anything which might delay the rollout of telecommunications networks would work to the detriment of rural Welsh businesses, and they do not wish to see the removal of prior approval procedures. This has not been raised as an issue in relation to Scotland or Northern Ireland. In England and Wales, 61% of Vodafone's apparatus needs are applications are decided by prior approval, 24% are permitted development and 15% require full planning permission. However, the researchers have not been able to find any evidence that implies an adverse impact on the roll out of new technology in Scotland, and there is evidence that there are more discussions about the operators' plans. The operators add that if approval rates are so high, there is not sufficient controversy over applications to justify increasing the regulations. It is significant that the amount of information submitted with an application for prior approval is exactly the same as for a full planning application and this is confirmed by the operators as they adhere to the ten commitments and obligations placed upon them.

From the perspective of the local planning authorities, responses from the interviews conducted as part of this study suggest that submission numbers would not necessarily increase in numbers if the prior approval arrangements were removed entirely and permitted development rights restricted to minor alterations and additions. The extent to which telecommunications permitted development rights existed would be a key influencing factor, but in the context of significant infrastructure, such as new masts, the change would logically revolve around submission types, with all matters being processed as full planning applications, as opposed to a combination of applications and prior application procedures as is currently seen. Actual total numbers would therefore be unlikely to shift significantly in such a scenario; rather the application type will change. In the context of workload implications, the key issue would be the proposition of all matters being processed as full planning applications, as opposed to the current dual procedure arrangements.

It is important to consider the difference in information requirements between the two procedures for full planning permission and prior approval. As briefly mentioned earlier in this report there are, as outlined in the Code of Best Practice, some differences in the information requirements needed for the two formats of procedure. The information actually required for the prior approval process is less than for a full planning application, although in practice, evidence collected as part of this research suggests that there is little difference in what is submitted for full planning and for prior approval, and this was confirmed in interviews conducted with the authorities and PINS Wales. Indeed, comments suggest that a standard 'pack' is produced by applicants for both submission types, with extensive information submitted for prior approvals. This not only represents best practice, as detailed by the Code of Best Practice on Mobile Phone Network Development, but also constitutes a logical precautionary approach on the part of the applicants, for whom a comprehensive submission will support any defence of the proposal, either to the LPA or PINS if the matter ends in an appeal. On this basis, it can be suggested that the input into applications will remain comparable if all telecommunications development was processed as a full planning application. Comments by local planning officers in Scotland confirmed that the system was working well in part because the quality of the information and documentation supplied by the operators had improved over time and was detailed and to a high standard. This was felt to be as a consequence of the Ten Commitments. Technological advances were identified as having been able to overcome some of the earlier design concerns. There was also evidence of increased site sharing. It should be noted that the degrees of delegation of decision making to officers varies across planning authorities in Scotland and that this would be a matter for each Welsh local planning authority who have discretion to decide what to delegate. The concern expressed by some is that restricted delegation can result in applications being delayed due to the need to meet committee cycles.

The increase in matters which can be considered in a full planning application, compared to the prior approval arrangements, is important when considering the impact on LPA workloads. It has already been discussed that there is some confusion over what constitutes a material consideration, but in fact, the guidance is such that some Local planning authorities treat a prior approval in the same way as they would an application for planning permission. On this basis, only a limited number of additional considerations are likely to become material in the absence of a prior

approval arrangement, with the important health factor already a consideration, reducing the impact upon workload and the local authority decision making process.

Evidence obtained about appeals suggests that the potential for appeal numbers to increase does exist. The ability to debate issues, perhaps health concerns in particular, could lead to delays and increased non-determination rates, leading to greater pressures being placed upon PINS Wales as well as local planning authorities and the telecommunications industry. There is also a concern, raised by some participants in the study that an increased involvement by Members could potentially lead to an increased number of refusals. Rather than submission numbers increasing, or initial work inputs becoming more demanding, it is therefore likely to be the determination of applications which becomes more involved, together with a potential increase in post-determination activities, principally appeal work.

The prior approval procedure does not operate in national parks, where permitted development rights are also limited. Due to the fact that the national park is the planning authority, it has been possible as part of this study to examine the situation in Snowdonia National Park, where only those sections of Part 24 relevant to Article 1(5) land apply. This has enabled some conclusions to be drawn with regard to the kind of changes which would be introduced if Option 2 is adopted. In Snowdonia, all telecommunications submissions are for full planning permission, which situation would prevail under Option 2. Although the overall performance of Snowdonia is not particularly impressive, the statistics collected do suggest that telecommunications applications within the authority do not take a disproportionate period of time (table 10.3). Indeed, performance in relation to telecommunications matters is superior to the wider authority performance. It is significant when considering this situation to note that the involvement of Members in decision making is higher in Snowdonia than the Wales national average in the results collected (table 10.2).

In Snowdonia National Park an average of 50% of applications were delegated decisions over the surveyed five year period (table 10.2). For the other participating local planning authorities, a 75% average of prior approvals were delegated decisions, and a 75% average of telecommunications planning applications were delegated decisions.

| **Year** | **Percentage of delegated telecommunications decisions (Snowdonia NPA)** | **Percentage of delegated decisions – prior approval (sample authorities, excluding NPA)** | **Percentage of delegated decisions – telecommunications planning applications (sample authorities, excluding NPA)** |
|---|---|---|---|
| 2007-2008 | 63 | 70 | 71 |
| 2006-2007 | 67 | 68 | 88 |
| 2005-2006 | 13 | 74 | 62 |
| 2004-2005 | 50 | 83 | 72 |
| 2003-2004 | 56 | 78 | 81 |
| **AVERAGE** | **50** | **75** | **75** |

**Table 10.2.** Percentage of delegated decisions

Notwithstanding the increased sensitivity of this geographical area, the delegation rate in Snowdonia suggests that a result of a removal of the prior approval procedure could be an increased involvement by planning committees in decision-making. This need not, however, lead to telecommunications proposals taking a disproportionately long time to be determined. Decisions taken within 8 weeks by Snowdonia are on an upward curve, with around twice as many applications determined within 8 weeks in 2007-2008 compared with 2003-2004, despite 2007-2008 uniquely seeing higher numbers of applications than in previous years (table 10.3). The number of telecommunications applications determined within 8 weeks in 2006-2007 (50%) compares well against the performance figures in Snowdonia for all planning applications (42% in 2006-2007) and minor applications (34% in 2006-2007) (Welsh Assembly Government, 2007). On this basis, one can conclude that telecommunications decisions in Snowdonia do not take a disproportionately long period of time, compared to the wider performance of the authority.

| **Year** | **Number of telecommunications applications determined** | **Telecommunications decisions taken within 8 weeks (%)** |
|---|---|---|
| 2007-2008 | 30 | 60 |
| 2006-2007 | 6 | 50 |
| 2005-2006 | 8 | 38 |
| 2004-2005 | 10 | 30 |
| 2003-2004 | 9 | 33 |

**Table 10.3.** Telecommunications decisions taken within eight weeks in Snowdonia

Safety Impact

The impact on safety would be similar to that which prevails now, except that it is clearer what constitutes a material consideration under the requirements for decision making on a full planning application. Local planning authorities would be able to scrutinise the applications for compliance with the ICNIRP guidelines, as now. Since it is recognised that health concerns are more likely to concern the general public, there is a view that the removal of the prior approval procedure will encourage more confidence in the system generally, with perceptions of greater openness. This is the view of many, although the operators point out that in neither Northern Ireland nor Scotland has the issue of health concern gone away, and this is confirmed in the research done as part of this study. To conclude, there would be no adverse impact on safety matters under Option 2.

Legal Impact

Option 2 would create a different legal regime for Wales, although assuming the Scottish model was adopted, it would be similar to Scotland. The operators have said that they prefer a consistent approach to telecommunications across the UK, but many of these companies are also operating in other European countries with different laws. The MOA suggested that there would be an additional burden on the national operators in understanding different regimes, but that experts are already in place to do this. The issue of divergence in the devolved administrations and how to manage change was raised by some local authority respondents. Newport Borough Council, for example, highlighted the issue of the lack of a planning encyclopedia which refers

to Welsh circumstances. The suggestion was made that Welsh Assembly Government guidance is not sufficient to ensure local planning authorities are adequately supported in the management of the planning system. In the context of telecommunications matters this could be significant because if the removal of the prior approval procedure is pursued, the management of this change is of fundamental importance.

Option 2 also provides the opportunity for clearer regulations, which could result in fewer legal errors by local planning authorities, resulting in fewer legal challenges in courts – potentially by all stakeholders, with a reduction in costs. There may be issues raised about the role of statutory undertakers, and the less permissive regime for code operators. It could be argued that code operators are different anyway to providers of water, gas and electricity, but those industries are also privatised now, and competition exists between them. Whilst no research has been done into this, this question of equity between what are generally seen as statutory undertakers was raised by some local authorities.

Environmental Impact

There is a view that a longer timescale for making decisions could result in better designed outcomes. Views relating to the relationship between decision quality and the imposition of the deemed consent arrangement did vary amongst the participants in this study. It was suggested by some participants that given longer, a better decision could be reached on the basis that Local planning authorities would have the ability to return to an applicant and enter into meaningful negotiations in relation to, for example, siting and design. Whilst there is clearly merit to this, a contrasting view was posed by Powys Council. Because the 56 day period is the same as for non-major full planning applications, it should be sufficient to consult, engage in meaningful negotiations, and come to a reasoned judgement on a planning application. In the case of a full planning application, an extension of time could be agreed in such instances, allowing matters to potentially be resolved. For a prior approval, a decision must be made. This could either be a refusal in circumstances when a resolution could have been reached in a longer time period, or an approval when the optimal solution has not been reached. It can therefore be concluded that, in some instances, the option of an extension in time is desirable to enhance outcomes and decision quality.

It does beg the question as to why masts are not better designed. When questioned about this, operators stated that it usually depended upon the negotiating ability of the local planning authority as to whether or not they offered better designs. Vodafone, for example, have just 59 false trees in 12000 masts in the UK (although some would argue that these types of tree mast do not represent ‘better design’). PLACE argues that real trees can be used for masts, and cite one in Crieff in Scotland, although the industry is worried about the safety, security and permanence of real trees. The researchers are aware of better designs in the form of sculpture, and other disguises on buildings, all of which could exist now, so longer timescales could encourage the use of better designs. Based upon the comments made during interviews with local planning authorities, there is some suggestion that authorities are approving prior approval submissions when the design solution is not optimal, but this must be regarded against the relatively poor performance of some Welsh authorities in meeting eight week targets for determinations. This is an unfortunate outcome of the prior approval procedure.

Social Impact

There is some evidence that in Scotland and Ireland (see other research in parts of this report), there is a restoration of trust between communities, legislators and the industry with the removal of the prior approval procedure which the public view with suspicion. However the main issue of health did not go away, and some protest about it remains. Clearer regulations will result in a greater understanding by communities of the GPDO, which might give less room for objection. However, a point reiterated in many studies (Askew, 2004; ODPM, 2006; Lloyd et al, 2004) is that community trust can be restored by the maintenance of good relations between the local authorities, the industry and the operators, and more open decision making will help this. It would be in everyone's interest if there was less direct action by way of protest, and research in Scotland did not reveal any change in protest, although communities remained concerned about the health impact. The potentially longer period for consultation of communities is considered to be a major factor in decision making in respect of telecommunications. PINS is firmly of the view that consultation is important and others suggest that the removal of prior approval could assist with this. However, the industry point out that they have gone to great lengths to consult with communities on all applications, possibly more than for any other type of development (Askew, 2006).

One issue raised by the industry is the increased involvement of politicians due to the likelihood of more applications going to committee, resulting in more political decisions, and more appeals. It has been suggested that some controversial applications are refused so the local members do not have to make the decision (although this is largely anecdotal), and this was raised as a concern in Scotland (Lloyd et al, 2004). It raises the issue of delegation of decision making and the extent to which applications have to go to committee. The Code of Best Practice on Mobile Phone Network Development advises that local planning authorities should ensure that effective delegation procedures are in place to ensure that prior approval submissions can be determined within 56 days. The implication of this is that prior approval applications will be processed as delegated matters when in other circumstances the involvement of the planning committee would be required to ensure that the decision is made in good time. However, this study suggests that this is not always the case. The planning authorities interviewed presented a range of solutions in order to ensure that prior approval applications could be taken to committee:

1. Newport: planning committees are held every four weeks. In some instances, it is not possible to take a prior approval submission to one of these committees due to the 56 day date. In such circumstances, a special committee is held to determine the matter.
2. Powys: the authority operates two area committees which both run on four week cycles, two weeks apart. Although these committees typically determine applications for matters falling within their authority area, they are able to use this arrangement to ensure all telecommunications matters can be heard by one of the planning committees.
3. Torfaen: although this authority only runs on a four week cycle, the management of prior approval submissions is such that they are always heard by the committee. Special committees have been used in the past where dates do not allow this.

The implication of these examples is that committee involvement, and therefore political decision making, would not necessarily increase in all Local planning authorities if the prior approval procedure was removed. However, this does not take into account the implications of the increase in control, or perception of increased control, afforded to Local planning authorities through the removal of the prior approval arrangements. Additionally, a number of Local planning authorities do operate schemes which do limit the percentage of applications heard by a planning committee due to the limitations of their committee cycles. In these authorities committee involvement would increase. The result of this would mean that a higher percentage of applications are taken to committee, and potentially a resultant higher number of refusals and appeals. This has to be read in conjunction with other evidence which suggests that mast applications are reducing, and that the smaller installations may have less impact.

It is important, however, to consider the value of the planning committee as a transparent decision making environment that has advantages over the delegated arrangements. During interview, the development control manager of Newport Council made the point that taking a delegated decision can be seen as a decision taken behind closed doors. The committee is a more overtly public arena, potentially improving the public's perception of the democratic decision making process as being more transparent, where in some cases, the public can speak to object to a proposal. The cost-benefit of this will likely be dependent upon the individual local authorities and their ability to manage the increased involvement of planning committees in the decision making process.

Table 10.4 provides a summary of the impacts, including costs and benefits, of Option 2.

| Options | Impacts | | | | | |
|---|---|---|---|---|---|---|
| | **Technical** | **Economic** | **Safety** | **Legal** | **Environmental** | **Social** |
| 2.<br><br>Partial regulation: remove prior approval, amend permitted development rights, with a greater or lesser requirement for full planning permission; clarify the wording of part 24. | **Costs**<br>**-** could regulate further some smaller masts/antennas ;<br>-more restrictive regime might hinder development of difficult sites and minor upgrades.<br>**Benefits**<br>+opportunity to update the regulations by removal of prescriptive dimensions for apparatus;<br>+could create 'technology' neutral part 24 to allow for future developments;<br>- could encourage mast/site/ network sharing for joint delivery of broadband, TV, Internet, telecoms<br>+infrastructure providers and owners of structures might | **Costs**<br>-removal of certainty for operators<br>-could hinder rollout;<br>-operators might be less inclined to invest in rural areas if delay seems likely;<br>-could hinder business competitiveness;<br>-could result in higher non-determination rates;<br>-could increase appeals.<br>**Benefits**<br>+reallocation of workload but experience elsewhere suggests no substantial increase;<br>+ encourages earlier discussion with Local planning authorities;<br>+evidence from Snowdonia shows no economic impact on Local planning | **Costs**<br>-none<br>**Benefits**<br>+safety impact similar to now;<br>+LPA would monitor more ICNIRP certificates if pd rights were limited;<br>+health issues potentially clearer as they would be a material consideration. | **Costs**<br>-would be assisted by a Welsh Encyclopaedia;<br>-management of legal change required<br>-would create divergent regime for Wales in devolved UK;<br>-burden on national operators in understanding different regulations;<br>-questions raised about different regulations for different statutory undertakers;<br>-RIA required.<br>**Benefits**<br>+clearer regulations for all to understand;<br>+less need for interpretation<br>+fewer legal challenges in court;<br>+less legal error by Local planning authorities if prior | **Costs**<br>-Local planning authorities could lose focus and achieve less.<br>**Benefits**<br>+longer timescales would allow for better negotiation on design, siting and optimal location;<br>+better design in rural areas where infrastructure still to be developed;<br>+allows for better and clearer policy and guidance. | **Costs**<br>-increase in Members' inputs could create more politicised decisions;<br>-more appeals potentially.<br>**Benefits**<br>+some evidence to suggest that trust restored among communities;<br>+less protest by removal of prior approval;<br>+greater understanding by communities of the regulations;<br>+less room for objection;<br>+longer timescales for determination results in more/better consultation;<br>+better relations between industry, communities and local authorities;<br>+issues of perception |

| Options | Impacts | | | | | |
|---|---|---|---|---|---|---|
| | Technical | Economic | Safety | Legal | Environmental | Social |
| | benefit from more sharing;<br>+policy guidance would acknowledge dynamic and innovative nature of technology;<br>+reduction in cost from less legal challenge;<br>+no evidence in Scotland that it slowed down roll out. | authorities, and no delays to determinations. | | approval is removed. | | and suspicion likely to reduce;<br>+no difference in numbers of applications going to committee;<br>+committee decisions improve public confidence in the system. |

**Table 10.4.** A summary of the impacts, including costs and benefits, of Option 2

**Option 3**
**Do nothing: retain existing permitted development rights and the prior approval procedure as outlined in Part 24 of the GPDO of 1995, as amended in 2002 (Wales).**

The impact of retention of the current system has been fully explored in the issues section of this report, which outlines the benefits and problems with Part 24 as it stands. The 'do nothing' option should be considered in the light of the strength of the demands for some changes to the regulations, which at the very least relate to the re-writing of Part 24 in plain language. Whilst many respondents wish to retain *aspects* of Part 24, only three of those consulted thought that Part 24 should remain completely unaltered, one being Brecon National Park, for whom the more complex prior approval procedures, for example, do not apply (Article 1(5) land). Their view was that Part 24 worked well and it was not worth amending it. Amongst the operators, and voiced by the MOA, there was some fear that if it was changed, it might result in some kinds of alteration that they would not welcome.

Technical impact
Regarding the technical impact of doing nothing, it should be remembered that Part 24 does not only apply to mobile phone masts. Rapidly changing technology means that the convergence of mobile phone networks, broadcast networks, (TV and Radio) and Internet Protocol (IP) computer networks has seen the emergence of technologies suited to several communication domains, which may result in a demand for different infrastructure to that which is used now. There is a view that if technology changes significantly, the prescriptive nature of the current Part 24 will not be fit for purpose in the near future. Evidence is provided by the operators of this, as they have made suggestions as to what kind of amendments are already needed to the current Part 24 (National Grid Wireless, Arqiva, Vodafone).

The current regulations, if they remain the same, may not be suited to this technology in the near future, especially in rural areas, where demand for *basic* coverage still exists. The way in which the Scottish GPDO is phrased has been praised for its applicability to all technical situations, as described elsewhere in this report.

Economic impact
The operators (MOA) and supported by evidence from the CBI consider that nothing should be done to change Part 24 if it hinders in any way the provision of telecommunications. The view of the Mobile Operators' Association is that the

> 'planning system needs to reflect industry needs for new radio base station development and provide the right operating climate for the management and maintenance of existing networks'

The CBI points out in its evidence (derived from research done on UK competitiveness, 2008) that IT services and communications are important to a company's competitiveness in an international market, and that investment in IT will help achieve competitive advantage. The consideration of other options has explored whether or not this is true, and the general conclusion from other evidence is that the industry would not suffer unduly. It is significant that the urgency to provide whole networks has reached a certain point, where upgrading and improvements are more

important, and there is already evidence of more sharing of telecommunications infrastructure and the complete radio access network. Such sharing arrangements will involve operators in more discussions with local planning authorities as they strive to provide coverage in rural areas in partnership with other providers. Although there is potential for the existing situation to be improved with the provision of new direction and guidance, the economic impact on local authorities will not significantly change, especially as there is evidence to suggest that application numbers have reduced recently. The present confusion over how to deal with minor applications under the prior approval procedure will likely remain.

This option could mean that current levels of performance in the determination of some telecommunications matters are retained. The retention of a deemed consent arrangement ensures decisions on all prior approval matters are taken within 56 days. This offers clear benefits for the industry in the context of the management of their roll-out plans, and prevents the LPA from becoming entrenched in the decision making process. Having regard to the somewhat mixed performance of Local planning authorities in determining planning applications within 56 days, the retention of the current arrangements will ensure that a high forced standard of performance is maintained.

Safety Impact

There will be no impact on the safety of telecommunications infrastructure since there is no change to what exists already. ICNIRP certificates will continue to have to be provided as now, and regulated by a different body, overseen by international regulations. The mistrust of the impact on populations on health grounds will remain high amongst communities, and similar demands for health to be taken into account as a material consideration will endure. There remains a view that the current Part 24 and its reliance on the prior approval procedure does not comply with Stewart's recommendations on the precautionary approach. If more and smaller masts are provided, there might be a greater need for scrutiny for compliance with ICNIRP guidelines. The MHTR report recommends more research into health impact and any findings might have to be incorporated into new regulations requiring possible amendments, for example in procedures at a later date.

Legal Impact

There is no additional legal impact to what is experienced now if Part 24 remains the same. However, none of the current legal issues will go away under this option – that is, the disproportionate amount of legal challenge to current regulations, described elsewhere in this report, arising out of misunderstandings and misinterpretation of the legislation due to its complexity. There may be a requirement for legal amendments later in line with new research findings.

Environmental Impact

The environmental impact is similar to the existing, where siting and design are considered under the prior approval procedure. The shortcomings of the current system are explained elsewhere in this report, and there is a desire for better design of prominent structures in the landscape, especially in rural areas, where new masts are still to be provided. Retention of the existing system will result in the same approach to that which currently prevails. Retention of the existing does not iron out the inconsistencies in what needs planning permission and what is permitted

development. Since the operators have made suggestions about what could be done to improve design, doing nothing to Part 24 will not allow the introduction of these measures.

Social Impact

Notwithstanding the possible benefits of providing further education and guidance relating to the existing arrangements for the public, doing nothing may not significantly improve community concerns about the rollout of telecommunications. Currently community mistrust is high due to lack of understanding of complex regulations, and the lack of understanding about health issues, and the concerns about lack of consultation such as those outlined by One Voice Wales will likely remain. Socially it is recognised that demands for mobile phone coverage are high in rural areas, and this option will probably mean that operators will be able to provide to meet those demands, especially as operators are making agreements to share masts and networks. It is not known if this will be affected by the mere removal of prior approval procedures, although operators allege it will make a difference to their investment levels.

Table 10.5 provides a summary of the impacts, including costs and benefits, of Option 3.

| Options | Impacts | | | | | |
|---|---|---|---|---|---|---|
| | **Technical** | **Economic** | **Safety** | **Legal** | **Environmental** | **Social** |
| 3.<br><br>Do nothing: retain existing permitted development rights and the prior approval procedure as outlined in Part 24 of the GPDO of 1995, as amended in 2002 (Wales). | **Costs**<br>-current regulations may not be suited to future technical advances in telecommunications, radio, TV and internet/broadband provision;<br>-may result in missed opportunity to improve regulations.<br>**Benefits**<br>+operators are happy with it as it is. | **Costs**<br>-similar to existing;<br>-complex prior approval procedures cause delays;<br>-none of current problems with complexity of procedures go away;<br>-cost of legal challenges remains.<br>**Benefits**<br>+operators remain fully engaged;<br>+benefits to industry with certainty of decision under prior approval;<br>+no-one has to learn new rules and regulations with usual settling in period;<br>+could retain current levels of LPA performance. | **Costs**<br>- mistrust of health impact high among communities;<br>-does not comply with Stewart on precautionary approach, according to some sources;<br>-MHTR research may show new findings in future.<br>**Benefits**<br>+no change on impact on safety;<br>+ICNIRP certificates to be provided as existing. | **Costs**<br>-operators continue to challenge and question interpretation of regulations<br>-retains divergence across UK;<br>-none of current legal issues go away, including disproportionate legal challenges;<br>- may need amendments to procedures later to comply with new research findings.<br>**Benefits**<br>+no re-writing of law and regulations required<br>+no RIA required. | **Costs**<br>-no potential for improving design in line with suggestions;<br>-environmental impact similar to existing with no further time to negotiate better design and location;<br>-does not iron out inconsistencies in what needs planning permission and what is permitted development.<br>**Benefits**<br>None | **Costs**<br>-community mistrust remains high due to suspicion and perceptions<br>-community mistrust high due to lack of understanding of complex regulations;<br>-none of current problems with consultation and perceptions will go away.<br>**Benefits**<br>+operators continue to work with community and refine consultation procedures. |

**Table 10.5.** A summary of the impacts, including costs and benefits, of Option 3

**Option 4**
**Partial de-regulation: retain the prior approval procedure, and amend some aspects of what is permitted development to a greater or lesser extent; clarify the wording of Part 24.**

Option 4 is partial de-regulation in which the prior approval procedure is retained, and some aspects of what constitutes permitted development are altered. In the course of the research for the Welsh Assembly Government, various responses have been received with regard to what should and should not constitute permitted development under an amended GPDO in which the prior approval procedure is removed. Some of these represent an improvement, and will assist in making the GPDO fit for purpose in a rapidly changing industry. It may be that some could be introduced in conjunction with Option 2, in which the prior approval procedure is removed, and that might result in a removal of prior approval and the increase in permitted development rights. It is considered that the operators would consider any removal of prior approval procedures a form of increased regulation, even with a different set of permitted developments. The exact details of what could be altered cannot be investigated in detail in this report, although some recommendations are made in the conclusion about how to go about this.

Technical Impact
Since any alterations to the permitted development rights are very technical, some of the suggestions about how it could be changed are listed below. The changes are only those ones which have been suggested by the respondents to this study, and they are not an exhaustive list, nor have they been tested for their suitability with all code operators.

- installation, alteration, replacement of antennas on an existing mast even where there is an increase in height; (National Grid Wireless/Arqiva);
- a 10% rule for extensions to large masts (NGW/Arqiva, MOA);
- the addition of antennas on existing structures in the landscape – e.g. pylons, gasometers which are currently are treated like buildings (NGW/Arqiva, Mast Action UK, Vale of Glamorgan);
- replacement of an existing with a (perhaps) larger structure to facilitate shareable antenna systems (NGW/Arqiva);
- screening of rooftop installations (MOA; Vodafone; NGW/Arqiva);
- 3 cubic metres of equipment housing (NGW/Arqiva);
- an absolute requirement for sharing masts – could be encapsulated in permitted development rights (Denbighshire County Council, Torfaen Council);
- rooftop antennas less than 4 metres in height (MOA);
- face-mounted (on a building) antennas (MOA);
- increase the size of dish antennas (MOA);
- reduce the size of ground based masts to 10 or 12 metres (PINS);
- a defined diameter for the headgear for monopoles (PINS);
- antennas mounted on real trees (PLACE);

Technically, it would appear that these suggestions might result in a new Part 24 which would give more rights to the operators to install more apparatus without the

need for any kind of permission. Some might become out of date quickly and elsewhere in this report, caution has been suggested over a very prescriptive approach to the GPDO in a rapidly changing technology and such an approach would be very different to the approach to dealing with technology that has been praised in Scotland. It is difficult to state the exact dimensions. There is an interesting debate about the extent to which regulations influence the technology, and this question has been asked of operators. Was 15 metres selected as the size of mast for prior approval for any particular reason? It was explained that it was considered to be the optimum size to reach above street 'clutter'. There is some agreement that when the networks were first being rolled out, there was a tendency to provide masts of 14.9 metres as they gave speed and certainty. This is unlikely to be the case now, as masts are different, there is more sharing, more micro and pico cells to fill in the cells and increase capacity, and the 15 metre rule might not be so important. There have been suggestions (MOA, National Grid Wireless) to offer more permitted development rights for an increase in size of masts to allow for the placing of new antennas , but it is difficult to know how and where the height line would be drawn by legislators.

Economic Impact

For the operators, the view would be that the economic impact would be to the advantage of investment since there would be a more permissive regime. The CBI has not called for any change to the current system, but this option would seem to accord with their view that roll out of telecommunications for business should not be hindered in any way, and this has been adequately covered in this report.

For local planning authorities, the highlighted issues with the lack of understanding and clarity with the current arrangements could be addressed with this option, however, the need for such clarification exists in all instances, and the issues posed by this option do not outweigh the benefits presented by such clarification. The problems outlined in the issues section would continue for local authorities, with the retention of prior approval and all the problems of interpretation, legal challenge, dealing with the public etc. More permitted development might result in fewer applications, so it could reduce the burden of workload within hard-pressed local authorities. The researchers did not test this option fully to try to understand or predict what its exact impact on numbers of applications would be, since the exact dimensions and types of permitted development would require considerably more work on the technical side.

Safety Impact

Safety and health concerns could increase amongst the general population, as the proposals would appear to be further away from the precautionary principle advised by Stewart, and health impact objections are likely to rise as this is a more permissive regime. It is true that TAN 19 (paragraph 83) advises that the cumulative impact of antennas on base stations must be taken into account, but the level of permitted development rights allowed (especially in respect of small antennas) has the potential to raise further concerns amongst some members of the public.

Legal Impact

There is the potential for more legal challenge if this option was adopted. Whilst the regulations could be clearer and better written in simpler form, the more permissive regime would invite challenge, perhaps under human rights legislation (for more detail on this, see under Option 5 below). This option would grant operators in Wales

the least regulated system in the UK and this might call for further de-regulation in the other devolved administrations, although there would appear to be no disadvantage to code operators in Wales.

Environmental Impact

The environmental impact could be significant in this option. It would reduce the opportunity for developments to be scrutinised by local planning authorities and this could result in less acceptable designs for telecommunications infrastructure. Location, visual impact, siting, design would all suffer under this option, and this could be to the detriment of the landscape, especially in rural areas which are not national parks. It is the duty of planning authorities to find the best visual solutions, and this would not allow this, depending upon what sorts of development were granted permitted development rights.

Social Impact

Community mistrust would likely remain high due to the retention of prior approval and what will be perceived as a more permissive regime. Whilst community consultation is extensive at present, due to Government and operator agreement, (Code of Best Practice, the MOA's 'Working with the Community' guidance, the ten commitments), objections remain high under current rules, and they are likely to increase under this proposal. Health concerns will not abate and communities would perceive that their rights to object have been diminished by different rules which allow more to be built without any kind of permission. The problems of interpretation of prior approval would not be removed, and the potential for mistrust is high.

Table 10.6 provides a summary of the impacts, including costs and benefits, of Option 4.

| Options | Impacts | | | | | |
|---|---|---|---|---|---|---|
| | **Technical** | **Economic** | **Safety** | **Legal** | **Environmental** | **Social** |
| 4.<br><br>Partial de-regulation: retain the prior approval procedure, amend some aspects of what is permitted development to a greater or lesser extent, clarify the wording of part 24; similar to 'do nothing' option | **Costs**<br>-could become out of date due to over prescription of dimensions;<br>-difficult to state exact dimensions of revised pd rights due to changing circumstances;<br>-difficult to reach agreement on dimensions for all code operators.<br>**Benefits**<br>+ Offers opportunity to update regulations and the pd rights in accordance with new technology;<br>+can be technology-neutral for the future;<br>+good for operators as assists in difficult rollout and upgrades of apparatus. | **Costs**<br>-retention of prior approval retains same problems for LPA;<br>-less regulation could result in need for more resources to deal with queries from public.<br>**Benefits**<br>+operators like less restrictive nature;<br>+for operators costs similar to now and no hindrance to business model;<br>+fewer applications for Local planning authorities, could reduce workload;<br>+could clarify rules to make interpretation easier. | **Costs**<br>-less opportunity for Local planning authorities to scrutinise ICNIRP certificates;<br>-safety concerns would increase among general population;<br>-further removed from precautionary approach advised by Stewart.<br>**Benefits**<br>None | **Costs**<br>-would need a Welsh Encyclodaedia;<br>-further removed from precautionary approach;<br>-potential for more legal challenge;<br>-least restrictive regime in UK might create demands upon other devolved administrations from operators;<br>-regulations difficult for legislators to phrase and agree;<br>-possible challenge under human rights legislation;<br>-RIA required.<br>**Benefits**<br>+clearer rules about permitted development. | **Costs**<br>-less opportunity for scrutinising visual impact, siting and location;<br>-potential for poor design and siting.<br>**Benefits**<br>None | **Costs**<br>-community mistrust remains high due to retention of prior approval;<br>-health concerns do not abate;<br>-perceptions and suspicion increases;<br>-less opportunity for members to become involved in applications;<br>-any amendment of pd rights has potential to create mistrust.<br>**Benefits**<br>None |

**Table 10.6.** A summary of the impacts, including costs and benefits, of Option 4

**Option 5**
**Complete de-regulation: all telecommunications infrastructure is permitted development**.

This option has been included for the purposes of making the list of options exhaustive. It was not suggested by any respondents, but the consequences of such an approach were tested at the focus group. The impacts will be dealt with briefly as it is not an option that is feasible. Regulation is an accepted part of compliance with the law, and it is doubtful if any business, or member of the public would expect such a regime.

Technical Impact
It is unlikely that operators would desire such an unregulated regime, although technically there would be no impact, as they could create whatever kind of network they thought appropriate for Wales. There might be less planning for the network and less likelihood of sharing masts, since it would be a free for all, and sites would not be difficult to identify based on likelihood of permission. This would prevent some recent desirable attempts to provide masts on pylons and similar difficult sites, due to ease of getting permission for the cheapest option. Community protest might result in more direct action against masts which could be expensive for operators, compromising safety too. Other factors would outweigh the technical advantages.

Economic Impact
Similarly, the adverse economic impact would be low, and favourable economic impact might be high. Operators would have no regulation to prevent them from roll out of networks, but perhaps no social obligations to provide masts in areas of low coverage either. There would be less or no applications for local authorities, but increased protest from communities could create economic impact in the long run.

Safety Impact
This has the potential to be the least safe option as local authorities would not be able to scrutinise the developments for ICNIRP compliance. Other safety issues might ensue in the form of direct action due to community dissatisfaction, and this could compromise safety of people. Health concerns would likely increase.

Legal Impact
It is suggested that this option would be inconsistent with public law principles, and might lead to challenges under human rights legislation. Lawlessness might follow due to public concerns in such a de-regulated industry which has the potential to cause harm as such an option would not comply with the precautionary principle. Legal challenge might increase, but the option does not operate in the interests of democracy.

The implications of the existing regime have been challenged in the context of human rights implications, but this has not affected their operation. There have been two main thrusts of argument used by the public to try to limit the development of telecommunications masts through the use of the European Convention on Human Rights. The first was through the protection of the right to life enshrined in Article 2. In the case of Harris v First Secretary of State, the claimant sought to quash an inspector's decision, as they suffered from a health complaint which could have been

aggravated by emissions from the equipment. The court held inter alia that adequate health protection measures are in place, under PPG8 in England. The second is through the protection of the right to a fair trial enshrined in Article 6(1) of the European Convention on Human Rights. Cases such as Trevett v Secretary of State for Transport, Local Government and the Regions failed because the appeal process either to the courts or an inspector gave the public opportunity to appeal any primary decision. In the case of R v First Secretary of State (ex parte Nunn) the Court of Appeal found that the claimant's human rights had been infringed because the local authority had refused the application but failed to notify the applicant within the time limit under the prior approval procedure. The court did not grant an order to quash the planning consent.

Social Impact

It is anticipated that protest and objection would increase significantly. Mistrust and conflict could increase between community groups, local planning authorities, the industry and Government. The industry has worked hard to involve communities and local planning authorities in its rollout planning and consultation with the community and all the hard work that has been attempted to date would be lost.

Table 10.7 provides a summary of the impacts, including costs and benefits, of Option 5.

| Options | Impacts | | | | | |
|---|---|---|---|---|---|---|
| | **Technical** | **Economic** | **Safety** | **Legal** | **Environmental** | **Social** |
| 5.<br><br>Complete de-regulation: all telecommunication infrastructure is permitted development under planning law | **Costs**<br>-operators would have total control over technical advances;<br>-less likelihood of sharing and co-operation with other operators;<br>-other factors would outweigh advantages of this;<br>-community ignorance of the technology.<br>**Benefits**<br>+operators could provide whatever technical advances without control. | **Costs**<br>-increased protest from communities creating additional economic burden in the long run;<br>-could lead to irresponsible developments;<br>-could result in corners cut and no extra money spent on suitable design and locations.<br>**Benefits**<br>+could result in unhindered roll out for code operators;<br>+favourable advantages for some rural communities;<br>+fewer or no planning applications for Local planning authorities. | **Costs**<br>-local authorities would not be aware of any developments and would not have opportunity to scrutinise ICNIRP certificates for compliance with EMF regulations;<br>-more direct action by protesters puts community at risk.<br>**Benefits**<br>None | **Costs**<br>-inconsistent with public law principles;<br>-could lead to claims of human rights abuses;<br>-lawlessness might ensue;<br>-inconsistent with precautionary approach;<br>-presupposition against de-regulation under EU law;<br>-RIA required.<br>**Benefits**<br>None | **Costs**<br>-could lead to completely unsuitable locations for large developments;<br>-no opportunity to negotiate on design and siting;<br>-detrimental to rural areas and landscape value.<br>**Benefits**<br>None | **Costs**<br>-communities would be more likely to protest against all developments through direct action;<br>-no opportunity for members or communities to become involved in annual roll out plans,<br>-no opportunity to scrutinise planning applications<br>-no right to object to proposals.<br>**Benefits**<br>None |

**Table 10.7.** A summary of the impacts, including costs and benefits, of Option 5

# CHAPTER ELEVEN
# CONCLUSIONS AND RECOMMENDATIONS

## 11.1 General conclusions

The main conclusion arising out of this study is that there is an absolute consensus for change to the current regulations. All participants and respondents suggested that change is necessary, although there is disagreement over the degree and detail of change. Furthermore, the conclusions of this study do not conflict with the conclusions of all other research studies carried out into permitted development rights for telecommunications code operators

All stakeholders who participated in the study agree that the issues relating to Part 24 are as follows:

- that the current Part 24 is difficult to understand and interpret because of its complex language;
- that there are problems with the understanding and operation of the procedures for the submission of applications for prior approval, despite supplementary policy and guidance offering advice on how it should be implemented;
- that the regulations are difficult to understand with the potential for costly legal challenge;
- that what constitutes permitted development is sometimes not logical, nor always comprehensible.

There are other issues which are not agreed by all involved:

- that the current regulations reduce opportunities for public consultation resulting in the public feeling excluded from the process;
- that there needs to be some clarification over what constitutes a material consideration for all applications for prior approval and full planning permission;
- that certain changes will affect investment in telecommunications in Wales;

Each option attempts to show how the issues will be addressed as well as looking at the impact on wider range of matters.

The researchers draw conclusions about the feasibility of the options as follows:

1. Option 1: This level of regulation is not justified to address the issues identified in this study.
2. Option 3: There are clearly problems with the existing regulations and their retention without change will not resolve these issues.
3. Option 5: This is not feasible as it will exacerbate the problems already identified with the current situation, and it could have far reaching legal implications.

Option 2 (partial regulation) and Option 4 (partial de-regulation) are the two main options for consideration. In both options, there exists the chance to re-write Part 24

in accordance with suggestions for plain and clear language to enable a better understanding and easier implementation of the regulations. The main difference between the two options is the retention or otherwise of the prior approval procedure.

4. Option 4: Despite suggestions about how to improve the procedure and the wording (remove the two stage process for example), many of the issues identified would remain with Option 4, in which the prior approval procedure is retained. These issues include public perceptions and suspicions of the system; pressure to meet the 56 day timescale; lack of time for negotiation on better design; confusion over material considerations; lack of community involvement.

## 11.2 Preferred option

The researchers conclude that Option 2 is the preferred option, and reasons for this choice are explained below:

Option 2: Partial Regulation

Option 2 advocates partial regulation. It includes the removal of the prior approval procedure, an amendment of permitted development rights, which might include a greater or lesser requirement for full planning permission depending upon requirements of the technology and which will include a re-working and removal of the ambiguity of the language of Part 24.

Alternative models of Option 2

In section 10, in which Option 2 is examined in detail, the model used for testing amongst participants in the study is the Scottish model, in which the prior approval procedure has been removed, some permitted development rights remain, and the remainder needs full planning permission. The regulations were introduced in Scotland in 2001 and the impact was evaluated in 2004. As a contribution to this research for Wales, some further work has been carried out to further evaluate the situation in Scotland to see if the system is working.

The main conclusions to be drawn from the first evaluation (Lloyd et al., 2004) of the Scottish experience were:

- that the new regulations were introduced in response to public concern about telecommunications development and the health implications; administrative complexity; sensitivity over siting and design;
- it was seen as important to establish good communications and trust between operators and local planning authorities, and that good working relationships are important to support an effective and efficient planning process;
- that the ever changing demand for system capacity and coverage requirements make it difficult to predict where future base stations will be needed;
- that at first there was an increase in workload, but that this settled down after two years when the regulations were understood by all;
- there was a slow down of the roll out of 3G but that this was not due to the new regulations;

- that there was evidence of more member involvement in siting, design, and more use of disguise, along with more evidence of mast and site sharing; and
- that there was more emphasis on pre-application discussions, but the operators continued to request higher public involvement in the strategic rollout of the networks.

As part of this study, further research was carried out to bring up to date information about the situation in Scotland, and several interviews were held. The findings contribute to the evaluation of Option 4, providing practical insights into how different planning regimes are working on the ground, and are especially useful given that the regulations have been in force for seven years.

The findings of this study are that:

- a review of the GPDO (Prior, 2007, p.42) suggested that the regulations in Scotland had been modified to keep up with evolving technology and the public response to it, and that they 'enable the telecommunications industry to expand and diversify but ...sensitively'
- applications had reduced in 2008 as operators appear to be consolidating and upgrading;
- there is a general perception in Government and in local planning authorities that telecommunications are no longer the main issue of concern for communities (other matters have come to the fore – windfarms for example);
- planning officers reported that the current regulations are working well, and are well understood by operators, members and planners;
- there is more discussion about design and camouflage, addressing issues of visual amenity;
- there is emerging concern that the technology is changing faster than the legislation so more guidance and policy might be needed from Government.

It can be deduced from this that the regulations introduced in Scotland have gone some way towards resolving certain issues, some of which were similar to those which already prevail in Wales, and which have been identified as part of this research. In Snowdonia, the prior approval procedure does not apply and permitted development rights are limited. Research carried out as part of this study has shown that telecommunications applications do not take a disproportionate period of time to determine in comparison to other types of applications.

### 11.3 Focus group findings

As part of the research, a focus group was held towards the end of the study which tested the options with a cross section of stakeholders, including operators, community and business interests and local planning authorities. A full record of the findings and outcome of the focus group is included in Appendix G. The aim of the discussion was to test the options with the participants, and all the options were placed before them. The meeting was valuable since it allowed the stakeholders to talk about a different approach to telecommunications in a structured and facilitated atmosphere.

In the first discussion in which participants assessed the options in their own interest groups, the responses to the options were predictably in line with the impacts and responses as outlined in Chapter 10 above. In summary, the operators considered that any option which removed the prior approval procedure would be unacceptable to them, stating that any option including Options 1 and 2 would be likely to hinder investment and business. Option 5 was rejected by them as they accepted the need for some regulation, especially in relation to addressing community concerns. Option 3 remained acceptable to them but they considered that it needed re-writing and option 4 was probably their preferred option. The operators were strongly of the view that if change was made to the current regulations which went beyond mere clarification, (including clearer policy in a new TAN 19 and in Planning Policy Wales) that this needs to be fully justified.

The local authorities were not in total agreement, but like the operators, they considered that the current regulations (Option 3) needed to be clarified and re-written. They rejected Option 1 on the grounds that it would be too onerous due to workload implications, although the community group representative stated that this was her preferred option. Options 4 and 5 were rejected on the basis of lack of democracy, and a version of Option 2 was their preferred option.

The second discussion allowed the mixed groups to discuss the options with each other, and the task was to agree on a way forward. A consensus was reached within all groups relating to the need to change the current regulations. It was up to each group to decide what changes were needed.

Group 1 did not reach any agreement due to the divergence of preferred options – Option 1 to Option 4. Group 2 accepted that a programme of education of elected members and the public might address some of the problems of misconception and perceptions over health, but the main difference of opinion was over the retention of the prior approval procedure with operators and local authorities agreeing that there were problems with aspects of it. Group 3 considered that the prior approval procedure could be removed and replaced with a more permissive regime of permitted development rights, or, if prior approval is to be retained, remove the two stage process, and create a new set of permitted development rights.

As part of the research study, the options were also tested with (technical) telecommunications experts engaged in this kind of research at the University of the West of England. Whilst the Scottish model is one way of proceeding with Option 2, there may be ways in which a more permissive regime could be introduced through permitted development rights, and one example of this could be:

- all new masts and sites should be subject to full planning permission irrespective of height unless deemed diminutive (to be defined, and may relate to only ground based masts);
- permitted development rights could be granted for all replacements, modifications and new antennas on all existing masts, (subject to ICNIRP certification) on the grounds that this will promote the efficient utilisation of existing structures and discourage the building of new tall masts.

- permitted development rights could be granted to all base station modifications on existing sites (including equipment housing) within a certain cubic capacity;
- permitted development rights to be granted for like for like replacement of masts.

This would grant the operators some additional permitted development rights while removing the prior approval procedure.

However, the exact dimensions relating to antennas, masts, and equipment housing would be the subject of a more detailed study.

Taking all the comments together, the researchers remain of the view that Option 2 is the most likely to resolve the issues associated with the current regulations, and that further work is necessary to determine the exact nature of the permitted development rights. It is significant that the findings of this study support conclusions in other research carried out into this subject, in particular in respect of the removal of prior approval procedures for telecommunications applications. Even with clarification of the procedures, it is unlikely that any other option will resolve the issues associated with the present regulatory framework, especially in relation to the prior approval procedure.

### 11.4 Recommendations

A number of recommendations can be made:

1. Further work needs to be carried out into the actual dimensions of telecommunications infrastructure to determine the changes to permitted development rights, and this has to include the operators as well as legislators.

2. Due to the perceived success of the focus group, it is recommended that the Welsh Assembly Government facilitate a focus group to reach consensus in determining what should constitute permitted development, to include operators, local planning authorities, interest groups, PINS, WLGA (amongst others).

3. Any revised Part 24 must be written in plain language to make the permitted development rights clear.

4. Any change to Part 24 would require an amendment to Planning Policy Wales and TAN 19, as well as the Code of Best Practice.

5. Any changes must be carried out in full consultation with all stakeholders, and should recognise the efforts that the industry has made in its consultation procedures to involve local authorities and communities.

6. A series of training sessions for Assembly Members and local planning authority officers should be commissioned to ensure that their understanding of the complexity of telecommunications policy can be enhanced, along with training in better and more effective practices, including early policy making.

7. The researchers are of the view that greater involvement by local planning authorities in the annual rollout process would assist in a better understanding between operators, communities and local government. Evidence suggests that although the operators now produce a joint annual rollout plan every autumn, and invite local authorities to discuss their plans, a very small percentage of authorities engage with this process. Early planning for masts can reduce conflict at the planning application stage, and local planning authorities are urged to take the opportunity to discuss and scrutinise the annual rollout plan, and to engage the industry in dialogue as much as possible. This conforms with similar recommendations made in other studies into this subject (Askew, 2004).

# CHAPTER TWELVE
# REFERENCES

ASKEW, J., 2006. Mobile phone masts: the role of planners in resolving conflict. *Journal of Planning and Environment Law,* **July**, pp. 929-938.

ASKEW, J., 2004. *Mobile Phone Masts: Report of an Inquiry by the All Party Mobile Group (apMobile).* London: apMobile.

BRADLEY, A.W. AND EWING, K.D., 2007. Constitutional and administrative law. 14th edition edn. Harlow: Longman.

CBI, 2008. *UK Competitiveness: the role of IT services.* London: CBI.

CHOUDRIE, J., WEERAKKODY, V. and JONES, S., 2005. Realising e-government in the UK: rural and urban challenges. *Journal of Enterprise Information Management,* **18**(5), pp. 568-585.

CITY AND COUNTY OF SWANSEA, December 2006, 2006-last update, online register developed for mobile phone mast sites in swansea http://maps.swansea.gov.uk/telecommasts/ [08/20, 2008].

CITY AND COUNTY OF SWANSEA, 2008, telecom masts register. Available: http://maps.swansea.gov.uk/telecommasts/ [08/20, 2008].

CLG, 2008. Development Control Statistics, England 2007/08. London: Department for Communities and Local Government.

CLG, 2001. Planning Policy Guidance 8: *Telecommunications* .

DEPARTMENT OF THE ENVIRONMENT, 2000. *Planning Policy Statement 10: Telecommunications Development (Consultation draft).* Belfast: Planning Service.

DEPARTMENT OF THE ENVIRONMENT, 2001. *Planning Policy Statement 10: Telecommunications* . Belfast: Planning Service.

DEPARTMENT OF THE ENVIRONMENT, 2008. *Development Control Advice Note 14: Siting and Design of Radio Telecommunications Equipment.* Belfast: Planning Service.

DTI (COMMUNICATIONS AND INFORMATION INDUSTRIES DIRECTORATE), 2001. *Communications Liberalisation in the UK: Key Elements, History & Benefits.*

EUROPEAN COMMISSION, 2007. *Proposal for a Directive of the European Parliament and of the Council amending Directives 2002/21/EC on a common*

*regulatory framework for electronic communications networks and services, 2002/19/EC on access to, and interconnection of electronic communications networks and services, and 2002/20/EC on the authorisation of electronic communications networks and services.*.

EUROPEAN COMMISSION, 2008, *proposals for reform.* Available: http://ec.europa.eu/information_society/policy/ecomm/tomorrow/reform/index_en.htm [10 October, 2008].

EUROPEAN COMMISSION, 2008, regulatory framework for telecoms in the EU today. Available: http://ec.europa.eu/information_society/policy/ecomm/current/index_en.htm [10/10, 2008].

EUROPEAN PARLIAMENT, 2008. Mid-term review of the European Environment and Health Action Plan 2004 - 2010: 04/09/2008 - EP: non-legislative resolution.

EUROPEAN PARLIAMENT, 2008. Texts adopted by Parliament: Thursday, 4 September 2008 - Brussels Provisional edition (P6_TA-PROV(2008)0410): Mid-term review of the European Environment and Health Action Plan 2004-2010. European Parliament resolution of 4 September 2008 on the mid-term review of the European Environment and Health Action Plan 2004-2010 (2007/2252(INI)).

IBEC AND CBI JOINT BUSINESS COUNCIL, 2006 [?]. *Promoting Cross Border SME Competitiveness Through Improved Telecommunications Networks and Connectivity: An Integrated Study.*

IEGMP, 2000. *Mobile Phones and Health. Report of the Independent Expert Group on Mobile Phones (the 'Stewart Report').* London: The Stationery Office.

KWIATKOWSKA, M., 2008. From computers to ubiquitous computing, by 2020, M. KWIATKOWSKA and RODDEN, T. AND SASSONE, V., eds. In: *Royal Society Discussion Meeting,* 17 - 18 March 2008 2008, pp3665-3668.

LLOYD, M.G., PEEL, D.M., ROBERTS, P.W. AND RILEY, J., 2004. *Evaluation of Revised Planning Controls over Telecommunications Development.* Edinburgh: The Stationery Office.

LOCAL GOVERNMENT OMBUDSMAN, 2007. *Special Report - Telecommunications masts: problems with 'prior approval' applications.* London: The Commission for Local Administration in England.

MISHRA, A.R., 2004. Fundamentals of Cellular Network Planning and Optimisation: 2G/2.5G/3G... Evolution to 4G. Chichester: Wiley.

MOA, 2008. Review of permitted development rights for telecommunications development in Wales [Email] Message to A. Sheppard sent [07/2008].

NATHANIEL LICHFIELD (IN ASSOCIATION WITH SJ BERWIN SOLICITORS), 2003. *Review of Permitted Development Rights for the Office of the Deputy Prime Minister.* London: Office of the Deputy Prime Minister.

NATHANIEL LICHFIELD AND PARTNERS LTD, 2003. *Review of Permitted Development Rights. Report to Department of the Environment Planning Service of Northern Ireland.* Belfast: Planning Service.

NRPB, 2005. *Mobile Phones and Health 2004: Report by the Board of NRPB.* Volume 15, Number 5. Didcot, Oxfordshire: NRPB.

OFCOM, 2005. *Broadcasting Transmission Services: A Review of the Market (Final Statement).* London: Ofcom.

OFCOM, 2006. *Nations and Regions - Statement on the policy implications arising from the Communications Market: Nations and Regions research.* London: Ofcom.

OFCOM, 2007. *Communications Market Report 2007.* London: Ofcom.

OFCOM, 2008a. *Table of base station totals*. Last updated 11 April 2008. Available: http://www.ofcom.org.uk/sitefinder/table/ [30 October 2008, 2008].

OFCOM, 2008b. *The Communications Market 2008: Nations and Regions, Wales*. London: Ofcom.

OFCOM, 2008c. *Communications Market Report 2008.* London: Ofcom.

OVUM CONSULTING, 2007. *GSM Europe Health and Environment - Building Mobile Networks: European Mobile Operator Responses to Public Concerns.* London: GSM Europe.

SCOTTISH EXECUTIVE, 2000. *Consultation on Proposed Changes to Permitted Development Arrangements for Telecommunications Developments.* Edinburgh: Scottish Executive.

SCOTTISH EXECUTIVE, 2000. *Transport and the Environment Committee Third Report (2000) Report on inquiry into the proposals to introduce new planning*

*procedures for telecommunications developments - interim response by the Scottish Executive.* Edinburgh: Scottish Executive.

SCOTTISH EXECUTIVE, 2001a. The Town and Country Planning (General Permitted Development) (Scotland) Amendment (No 2) Order 2001: development by telecommunications code system operators (Circular 5/2001). Edinburgh.

SCOTTISH EXECUTIVE, 2001b. *National Planning Policy Guideline NPPG19: Radio Telecommunications.* Scottish Executive.

SCOTTISH EXECUTIVE, 2001c. *Planning Advice Note: PAN 62 Radio Telecommunications* Scottish Executive.

THE SCOTTISH GOVERNMENT, 2008. *Planning Performance Statistics 2004-2007.*

THE UNIVERSITY OF READING AND ARUP, 2006. *Review of the Code of Best Practice on Mobile Phone Network Development: Final Report.* London: Office of the Deputy Prime Minister.

TRANSPORT AND THE ENVIRONMENT COMMITTEE, 2000. *Report on inquiry into the proposals to introduce new planning procedures for telecommunications developments*. 3rd Report. SP Paper Session 1, TE/00/R3.

WALKER, M. (chair), 2008. *19th IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 2008*. Cannes, France 15 - 18 September 2008.

WALTON, W., 2002. The changing regulation of mobile-phone mast development in a devolved United Kingdom. *Environment and Planning B: Planning and Design,* **29**(5), pp. 687-705.

WELSH ASSEMBLY GOVERNMENT, 2002a. Planning Policy Wales. Cardiff: National Assembly for Wales.

WELSH ASSEMBLY GOVERNMENT, 2002b. TAN 19: Telecommunications. Cardiff: National Assembly for Wales.

WELSH ASSEMBLY GOVERNMENT, 2003. Code of Best Practice on Mobile Phone Network Development. Cardiff: National Assembly for Wales.

WELSH ASSEMBLY GOVERNMENT, 2006a. *CABINET WRITTEN STATEMENT: Written Response of the Welsh Assembly Government to the Report of the Environment, Planning and Countryside Committee's consideration of evidence taken*

*on the planning aspects of electronic telecommunications apparatus.* Carwyn Jones, Minister for Environment, Planning and Countryside, 22 November 2006. Available: http://cymrugydnerth.org/about/cabinet/cabinetstatements/2006/1008907/?lang=en [21 November, 2008].

WELSH ASSEMBLY GOVERNMENT, 2006b. *CABINET ORAL STATEMENT: Oral response of the Welsh Assembly Government to the Report of the Environment, Planning and Countryside Committee's consideration of evidence taken on the planning aspects of electronic telecommunications apparatus.* Carwyn Jones, Minister for Environment, Planning and Countryside, 29 November 2006. Available: http://cymrugydnerth.org/about/cabinet/cabinetstatements/2006/1014255/?lang=en [21 November, 2008].

WELSH ASSEMBLY GOVERNMENT, 2007. *Survey of Welsh Local Planning Authorities April 2006 to March 2007.* Cardiff: National Assembly for Wales.

WELSH ASSEMBLY GOVERNMENT, 2008. *People, Places, Futures: The Wales Spatial Plan 2008 Update.* Cardiff: National Assembly for Wales.

WELSH ASSEMBLY GOVERNMENT, 2008. Draft Welsh Ministers' regulatory impact assessment code for subordinate legislation (draft). Cardiff: National Assembly for Wales.

**Legislation**

*Communications Act (c21) 2003*. London: HMSO.

Council Directive 2002/21/EC of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive).

Council Regulation 2000/2887/EC on unbundled access to the local loop of 18 December 2000. Official Journal of the European Communities (L 336). 30 December 2000. pp4-8.

The European Convention for the Protection of Human Rights and Fundamental Freedoms of ROME 4 November 1950 and its Five Protocols: PARIS 20 March 1952; STRASBOURG 6 May 1963; STRASBOURG 6 May 1963; STRASBOURG 16 September 1963; STRASBOURG 20 January 1966.

*Government of Wales Act 1998 (c38)*. London: HMSO.

*Government of Wales Act 2006 (c32)*. London: HMSO.

*Harris v First Secretary of State* [2007] EWHC 1847 (admin).

*Human Rights Act 1998 (c 42)*. London: HMSO.

*R v First Secretary of State (ex parte Nunn)* [2005] EWCA Civ 101.

*R v Secretary of State for Transport ex parte Factortame Ltd (no.2)* (C213/89).

*The Town and Country Planning (General Development Procedure) Order 1995.* SI 1995 / 419 of 1995. London: HMSO.

*The Town and Country Planning (General Permitted Development) (Amendment) (Wales) Order 2002.* SI 1878 (W.187) of 2002. London: HMSO.

*Town and Country Planning Act 1990 (c8)*. LONDON: HMSO.

Trevett v Secretary of State for Transport, Local Government and the Regions [2002] EWHC 2696 (Admin).

# CHAPTER THIRTEEN
# APPENDICES

## Appendix A Specification for research contract

**SPECIFICATION FOR THE REVIEW OF MOBILE PHONE OPERATORS PERMITTED DEVELOPMENT RIGHTS**

**CONTRACT No. 144/2007/08**

## 1. Background

Part 24(as it applies to Wales) of Schedule 2 of the Town and Country Planning (General Permitted Development) Order 1995 S.I. No. 1995/418 (as amended) sets out the permitted development rights for development by Electronic Communications Code Operators. The Welsh Assembly Government requires an analysis of the legal, technical, economic and safety impacts of introducing possible changes to these permitted development rights.

## 2. Aim

The provision of a detailed options analysis report which for each of the 6 possible options for change (set out in Annex 1 to this specification), advises the appointed contractor's findings, assessment and any appropriate recommendations. Insofar as that report contains legal advice (or any analysis and recommendations derived from that advice), the contractor will also provide a version of that report, which WAG may elect to make publicly available, which omits that advice, analysis and recommendations.

## 3. Objectives

Each of the possible options for change contained in Annex 1 to this specification will need to be analysed and assessed for:

a. the technical, economic and safety impacts of implementing that option; and

b. whether that possible option for change would impact on one or more particular type of electronic communications code operator in a way which would have any discriminatory implications having particular regard to:-

i. Directive 2002/21/EC of 7 March 2002 on a Common Regulatory Framework for Electronic Communications Network and Services (Framework Directive)

ii. domestic public law principles.

## 4. Requirement

The Welsh Assembly Government, hereinafter called the Client, requires the appointed contractor to :

a. undertake the analysis and assessment set out in paragraph 3 above of each of the possible options for change contained in Annex 1 to this specification; and

b. to submit a report (details of the copies and quantities to be supplied are given in paragraph 5 below ) to the Client containing for each possible option for change their findings, assessment and any recommendations for any possible legislative change.

The Client also requires the Contractor to submit an additional version of their report ("the reduced version") in compliance with the requirements of second sentence of paragraph 2 above.

## 5. Timetable

The Client has produced a timetable of events below that will ensure the research / evaluation is completed on schedule. Any variations to these milestones must be agreed, in advance, with the Client and confirmed in writing by the Contract Manager.

The project will be undertaken in the period May 2008 to September 2008.

| | |
|---|---|
| a) Issue of invitation to tender | 30 April 2008 |
| b) Deadline for tenders | 22 May 2008 |
| c) Tender interviews (if required) | w/c 2 June 2008 |
| d) Contract awarded | 12 June 2008 |
| e) Project start date | 19 June 2008 |
| f) Induction meeting | w/c 23 June 2008 |
| g) Progress meeting | 28 July 2008 |
| h) Draft report | 1 September 2008 |
| i) Copies of final report (for final proofing) : | 15 September 2008 |

(i) full version- 1 unbound copy, 3 bound copies ( bilingual ), plus executive summary and 100 word summary ;and
(ii) reduced version (see paragraph 4 above) - 1 unbound copy, 3 bound copies (bilingual), plus executive summary and 100 word summary.

j) 10 copies of full version (including executive summary) 30 September 2008. 150 copies of reduced version plus a CD containing an electronic version of the reduced version of the report in bilingual form, (the CD must be scanned for viruses prior to submission to the Client).

## 6. Welsh Language Scheme

The successful contractor will need to ensure that services provided through this contract are compliant with the Welsh Language Scheme for the Welsh Assembly Government. A copy of the Scheme can be found at www.wales.gov.uk/welshlangscheme (English) or www.cymru.gov.uk/cynlluniaith (Welsh). The Contractor will be responsible for providing a fully proof read Welsh language translation of the final report as well as the reduced version of that report referred to in the second sentence of paragraph 2 above. Any translation work (English-Welsh: Welsh-English) required under this contract will be paid at a maximum of the Client's rates – copy attached.

## 7. Methodology and Scope

The Client requires tenderers to propose an appropriate methodology for this work at return of tender. The rationale for the methodology must be clearly stated, as should its ability to achieve the above objectives and deliver the required outputs within the specified time-scale as indicated in paragraph 5 above. The Client would expect the following phases of work to be addressed:

| | |
|---|---|
| Phase 1 | Information gathering about implications and effects of the possible options. (Liaison and obtaining views from industry and business interests, local planning authorities, stakeholders (especially electronic communications code operators); meeting with Mobile Operators Association and other key interests/community groups). |
| Phase 2 | Analysis and assessment including specialist advice. |
| Phase 3 | Preparation of report. |

## 8. Key sources of information

The following key sources of information provide a context for the research :

- Planning Policy Wales, chapters 12.11 to 12.13 (March 2002);
- Technical Advice Note 19 "Telecommunications (WAG , August 2002) ;

- Code of Best Practice on Mobile Phone Network Development (WAG, July 2003) ;
- The then second Assembly Report "Consideration of Evidence taken on the planning aspects of electronic telecommunications apparatus (NAW, Environment, Planning and Countryside Committee, October 2006) ;
- Written response of WAG to the above report (WAG, Cabinet Statement of 22 November 2006) ; and
- Oral response of WAG to the same report (WAG, Cabinet Statement of 29 November 2006 ).

## 9. Financial Standing & Resources

The Welsh Assembly Government wishes to ensure that suppliers have the necessary financial standing and resources to meet their obligations throughout the duration of this contract. This may include (where appropriate) considering your level of existing work commitments and the potential impact on resources that awarding a contract would have.

In deciding to tender for a contract, you should also be aware and take in consideration the risks of becoming over- reliant on the Welsh Assembly's business, or indeed that of any customer. In doing so, you should take into account earnings from any other work undertaken for the Welsh Assembly as well as potential earnings from this contract.

## 10. Freedom of Information

The Welsh Assembly Government is committed to open government and operates under a Code of Practice on Public Access to Information to meeting their responsibilities under the Freedom of Information Act 2000. Any information submitted by you in connection with this tender may need to be disclosed in response to a request under the Act.

If you consider that any of the information included in your tender is commercially sensitive, please identify it and explain (in broad terms) what harm may result from disclosure if a request is received, and the time period applicable to that sensitivity. You should be aware that, even where you have indicated that information is commercially sensitive, we may be required to disclose it under the Act if a request is received.

You will be consulted if we receive a request for disclosure of any of the information you have identified as commercially sensitive.

## 11. Environmental statement

The Client is committed to minimising the effect of its day to day operations on the environment and contractors are encouraged to adopt a sound proactive environmental approach, designed to minimise harm to the environment.

Factors to be considered should include areas such as:-

- Adopting an environmental management system which includes focus on disposal of waste and packaging
- More efficient use energy and water
- Beginning to embed sustainability into the provision of goods and services supplied to the Welsh Assembly
- Use of recycled paper containing only post-consumer waste for all non-specialist printing whenever possible
- Reduction in carbon dioxide emissions from business travel by extending use of video conferencing and encouraging the use of low emissions vehicles
- Building an environmentally friendly work culture through training and high quality communication with staff.

Whilst on site the contractor should be aware of and actively support the Client's Environmental Policy Statement which will be made available to you in advance or on arrival.

## 12. Contract Award Evaluation Criteria

12.1 All tenders will be evaluated against the following criteria in order of importance :

- quality of proposal to meet the objectives, including response to, and understanding of the project specification (35%) ;
- qualifications, demonstrated competency and relevant experience of researchers to undertake the project in accordance with the objectives (30%) ;
- cost (25%);
- ability to fully meet the timetable (10%).

12.2 Tenderers may be invited to make a presentation in support of their tender at the Client's offices at Cathays Park, Cardiff. The presentations, if held, will take place during the w/c 2 June 2008.

## 13. Monitoring

13.1 Client's Contact Point

The Contract Manager for the Client will be Gareth Brydon within the Planning Division of WAG.

The Contract Manager will be the point of contact for the Contractor during the course of the contract. He may elect to meet a named representative of the

Contractor as and when necessary to discuss any issues which may have arisen during the provision of the service.

13.2 Contractor's Personnel

Tenderers must provide the names of personnel to be assigned to the contract, brief CVs, their status in the organisation, their previous experience of dealing with contracts of a similar nature and their specific input into the study in terms of days and rates. A Price Schedule is attached for this purpose. Tenderers should also give details of a nominated contact point.

13.3 In the event of non-compliance with the Specification, the following procedure will be followed:

- notification of complaint and requirement to comply;
- notification of unacceptable practices and/or substantial non compliance to the Specification of the services;
- recourse to the conditions of contract.

## 14. Travel and Subsistence

Any travel and subsistence expenses incurred by Contractors in the delivery of the contract will be paid at a maximum of the Client's rates – copy attached at Annex 2.

## 15. Payment

Payment will be made on completion of the project following submission of the final report and within 30 days of receipt of a correctly submitted invoice. Invoices must show a full breakdown of costs that clearly relate to the successful contractor's submitted tender.

## 16. Security

If the successful contractor requires for its personnel, frequent and uncontrolled access to the premises of the Welsh Assembly Government, or where such personnel have access to restricted information, or proximity to public figures, then all such personnel must satisfy the security requirements of the Client by completing a security questionnaire. No contractor personnel will be issued security passes until they have obtained the required security clearance. Until then, they will be issued with a temporary pass and will have to be escorted by a member of staff each and every time they have access to the premises.

## 17. Changes to the Specification

This specification document sets out the Client's current service requirement. It is possible that during the life of the contract changes, for example, in the

nature and volume of the work and the timescale or other requirements will arise.

Changes to the Specification will be implemented by issuing written amendments to all those affected by the changes.

**18. Conditions of Contract for Research Services.**

The National Assembly's standard Conditions of Contract for Research Services hereafter enclosed should apply in relation to this contract. The Contractor must have regard to these Conditions.

**19. Ownership**

In line with the terms and conditions the ownership of all information provided by the Client for use in the Contract and all reports prepared will rest with the Client.

**ANNEX 1 TO SPECIFICATION (see paragraphs 2- 4 of specification)**

**The possible options for change**

1. **Option A**: No change to the existing permitted development rights as set out in Part 24 "Development by electronic communications code operator (Wales)" of Schedule 2 to the Town and Country Planning (General Permitted Development) Order 1995 (S.I .1995/418) as substituted by the Town and Country Planning (General Permitted Development) (Amendment) (Wales) Order 2002 (S.I. 2002/1878) and amended by S.I.s 2003/2155 and 2004/945 ("Part 24 (Wales) permitted development rights").

2. **Option B**: Revision or removal of Part 24 (Wales) permitted development rights for mobile phone operators telecommunications masts of 15 metres or less in height. (Revision might be to the extent of those permitted development rights or the prior approval procedure as set out in Part 24 (Wales) attached to them and the General Development Procedure Order).

3. **Option C**: Revision or removal of Part 24 (Wales) permitted development rights for all masts* of 15 metres or less in height. (Revision might be to the extent of those permitted development rights or the procedure as set out in Part 24 (Wales) attached to them).

4. **Option D**: Limit Part 24 (Wales) permitted development rights so that all ground based masts# irrespective of height, need express planning permission.

5. **Option E**: Limit Part 24 (Wales) permitted development rights to a maximum number[Ø] of antenna on buildings or other structures (other than ground based masts).

6. **Option F**: Any other options for change to Part 24 (Wales) permitted development rights identified by the appointed contractor.

**Footnotes**

* "mast" means a structure erected by or on behalf of an electronic communications code operator for the support of one or more antennas including any mast, pole, tower or similar structure.

# "ground based mast" means a mast constructed on the ground directly or on a plinth or other
structure constructed for the purpose of supporting the mast.

Ø possibly on buildings:
(i) over 15 metres in height, 8 antenna
(ii) 15 metres or less in height, 4 antenna and 8 small antenna.
Dwellinghouses, 2 small antenna.

## Appendix B Stakeholder list

| Company/Organisation Name |
|---|
| Airwave Solutions Limited |
| Anglesey Connected broadband service |
| Arqiva |
| AT&T Global Network Services |
| Blaenau Gwent County Borough Council |
| Brecon Beacons National Park Authority |
| Bridgend County Borough Council |
| Bridgend WiFi |
| Broadband Stakeholder Group (BSG) |
| BT Group plc |
| Cable & Wireless plc |
| Caerphilly County Borough Council |
| Campaign for National Parks |
| Campaign for Planning Sanity (CfPS) |
| Campaign for the Protection of Rural Wales |
| Cardiff County Council |
| Carmarthenshire County Council |
| Ceredigion County Council |
| Chester, Ellesmere Port & North Wales Chamber |
| City and County of Swansea |
| Citylink Telecommunications Ltd |
| Cityspace Ltd |
| COLT Telecommunications |
| Communications and Content Industries Unit |
| Communities and Local Government |
| Community Orientated Wireless Networking (COWnet) |
| Confederation of British Industry (CBI), Wales |
| Conwy County Borough Council |
| Countryside Council for Wales |
| County Planning Officers Society (Wales) |
| Data Pacific Ltd |
| Denbighshire County Council |
| Deudraeth Cyf |
| Dwr Cymru Cyfyngedig Welsh Water |
| Easynet Ltd |
| Environment Agency Wales |
| euNetworks Fiber UK Ltd |
| FibreSpan Ltd |
| FibreSpeed |
| Flintshire County Council |
| Fujitsu Services |
| Gaia Technologies plc |
| Geo Networks Limited |
| Global Crossing (UK) Telecommunications Limited |
| Gower Residents Against Mobile Masts (GRAMM) |

| |
|---|
| Gwynedd Council |
| Health Protection Agency (HPA) |
| Hutchison 3G UK Limited |
| Intellect |
| Intelligent Cities |
| Isle of Anglesey County Council |
| Langreen Ltd |
| Logicalis |
| Magor and Undy Local Area Network (Muclan) |
| Mapesbury Communications Limited |
| Mast Action UK (MAUK) |
| Mast Sanity |
| Merthyr Tydfil County Borough Council |
| MLL Telecom Ltd |
| Mobile Operators Association (MOA) |
| Mobile Telecommunications and Health Research (MTHR) |
| Monmouthshire County Council |
| National Grid Wireless Group |
| Neath Port Talbot County Council |
| Neos Networks Ltd |
| Network Rail |
| Newport & Gwent Chamber of Commerce & Industry |
| Newport City Council |
| Northern Ireland Government, Department of Environment |
| ntl:Telewest Business |
| Office of Communications (Ofcom) |
| One Voice Wales |
| Orange PCS |
| Pembrokeshire Coast National Park Authority |
| Pembrokeshire County Council |
| Pipex Communications Business Solutions |
| Pipex Internet |
| Pipex Internet Limited |
| Place |
| Planning Aid Wales |
| Planning Officers Society |
| Powys County Council |
| Public Services Ombudsman For Wales |
| Radiation Research Trust |
| Reynoldston Community Broadband |
| Rhondda Cynon Taf County Borough Council |
| RTPI Cymru |
| Severn Trent Water Ltd |
| Snowdonia National Park Authority |
| Surf Telecoms Limited |
| Tata Communications (UK) Limited |
| Telecomms Facilities Limited – TFL-Group |
| Telefónica O2 UK Limited |

| |
|---|
| TeleWare PLC |
| The Planning Inspectorate, Wales |
| The Scottish Government |
| THUS plc |
| Tiscali UK Ltd |
| T-Mobile (UK) Limited |
| Torfaen County Borough Council |
| UK Broadband Limited |
| Updata Infrastructure UK Ltd |
| Vale of Glamorgan |
| Verizon UK Limited |
| Virgin Media |
| Vodafone Limited |
| VSNL Telecommunications |
| WANPA - Welsh Association of National Park Authorities |
| Welsh Assembly Government |
| Welsh Local Government Association |
| West Wales Chamber of Commerce |
| Wrexham County Borough Council |

## Appendix C Responses to initial call for evidence

| Company/Organisation Name |
|---|
| Airwave Solutions Limited |
| Arqiva |
| Brecon Beacons National Park Authority |
| Bridgend County Borough Council |
| Caerphilly County Borough Council |
| Cardiff County Council |
| Confederation of British Industry (CBI), Wales |
| Denbighshire County Council |
| Dwr Cymru Cyfyngedig Welsh Water |
| Environment Agency Wales |
| Gower Residents Against Mobile Masts (GRAMM) |
| Isle of Anglesey County Council |
| Logicalis |
| Mast Action UK (MAUK) |
| Mobile Operators Association (MOA) |
| Mobile Telecommunications and Health Research (MTHR) |
| National Grid Wireless Group |
| One Voice Wales |
| Place |
| Planning Officers Society |
| RTPI Cymru |
| Telefónica O2 UK Limited |
| The Planning Inspectorate, Wales |
| The Scottish Government |
| T-Mobile (UK) Limited |
| Torfaen County Borough Council |
| Vale of Glamorgan |
| Vodafone Limited |
| WANPA - Welsh Association of National Park Authorities |
| Welsh Local Government Association |

## Appendix D Planning authority telecommunications applications statistics

| Company/Organisation Name |
|---|
| Blaenau Gwent County Borough Council |
| Bridgend County Borough Council |
| Conwy County Borough Council |
| Gwynedd Council |
| Flintshire County Council (statistics provided after project deadline) |
| Isle of Anglesey County Council |
| Newport City Council |
| Snowdonia National Park Authority |
| Torfaen County Borough Council |
| Vale of Glamorgan |
| Wrexham County Borough Council |

## Appendix E Stakeholder interviews

### E.1 Stakeholders invited for interview

| Company Name |
|---|
| Airwave Solutions Limited |
| Cardiff County Council |
| City and County of Swansea |
| Mobile Operators Association (MOA) |
| National Grid Wireless Group |
| One Voice Wales |
| Pembrokeshire Coast National Park Authority |
| Powys County Council |
| Public Services Ombudsman For Wales |
| Snowdonia National Park Authority |
| The Planning Inspectorate, Wales |
| T-Mobile (UK) Limited |
| Torfaen County Borough Council |
| Vodafone Limited |

### E.2 Stakeholders actually interviewed

| Company Name |
|---|
| Mobile Operators Association (MOA) |
| Newport |
| National Grid Wireless Group |
| One Voice Wales |
| Pembrokeshire Coast National Park Authority [telephone interview] |
| Powys County Council |
| Snowdonia National Park Authority |
| The Planning Inspectorate, Wales |
| Torfaen County Borough Council |
| Vale of Glamorgan |
| Vodafone Limited [self completion of questionnaire] |

## Appendix F Stakeholder focus group session attendees

### F.1 Stakeholders invited to attend focus group session

| Company Name |
|---|
| Airwave Solutions Limited |
| Arqiva |
| Bridgend County Borough Council |
| BT Group plc |
| Campaign for the Protection of Rural Wales |
| Ceredigion County Council |
| City and County of Swansea |
| Community Council, Aberystwth (Ceredigion) Mr Jim Griffiths JP, Clerk |
| Community Council, Ammanford (Carmarthenshire) Mrs Miriam E Phillips, Clerk |
| Community Council, Gowerton (Swansea) Mrs Serena Thomas, Clerk |
| Community Council, Pontypool (Torfaen) Mrs Ruth Vivian Tucker, Clerk |
| Confederation of British Industry (CBI), Wales |
| Conwy County Borough Council |
| Gower Residents Against Mobile Masts (GRAMM) |
| Gwynedd Council |
| Health Protection Agency (HPA) |
| Hutchison 3G UK Limited |
| Isle of Anglesey County Council |
| Mast Action UK (MAUK) |
| Mobile Operators Association (MOA) |
| Newport City Council |
| Orange PCS |
| Planning Committee Chair, Anglesey |
| Planning Committee Chair, Bridgend |
| Planning Committee Chair, Ceredigion |
| Planning Committee Chair, Conwy |
| Planning Committee Chair, Gwynedd |
| Planning Committee Chair, Powys |
| Planning Committee Chair, Swansea |
| Planning Committee Chair, Vale of Glamorgan |
| Planning Committee Chair, Wrexham |
| Planning Officers Society |
| Powys County Council |
| Telefónica O2 UK Limited |
| The Planning Inspectorate, Wales |
| T-Mobile (UK) Limited |
| Torfaen County Borough Council |
| Vale of Glamorgan |
| Vodafone Limited |
| Welsh Local Government Association |
| Wrexham County Borough Council |

## F.2 Stakeholders accepting invitation to attend focus group session

| Company Name | Sector |
|---|---|
| Airwave | Infrastructure provider (emergency services) |
| Bridgend County Borough Council | Local Planning Authority |
| Ceredigion County Council | Local Planning Authority |
| City and County of Swansea | Local Planning Authority |
| Confederation of British Industry (CBI), Wales | Industry |
| GRAMM | Community |
| Mobile Operators Association (MOA) | Operator |
| Newport City Council | Operator |
| Planning Officers Society | Local Planning Authority |
| Telefónica O2 UK Limited | Operator |
| T-Mobile (UK) Limited | Operator |
| Torfaen County Borough Council | Local Planning Authority |
| Vale of Glamorgan | Local Planning Authority |
| Vodafone Limited | Operator |

## F.3 Stakeholders actually present at the focus group session

| Company Name | Sector |
|---|---|
| Bridgend County Borough Council | Local Planning Authority |
| Carmarthenshire County Council | Local Planning Authority |
| Ceredigion County Council | Local Planning Authority |
| City and County of Swansea | Local Planning Authority |
| Confederation of British Industry (CBI), Wales | Industry |
| GRAMM | Community |
| Mobile Broadband Network Limited | Operator |
| Mobile Operators Association (MOA) | Operator |
| Newport City Council | Local Planning Authority |
| Telefónica O2 UK Limited | Operator |
| T-Mobile (UK) Limited | Operator |
| Torfaen County Borough Council | Local Planning Authority |
| Vale of Glamorgan | Local Planning Authority |
| Vodafone Limited | Operator |

## Appendix G Stakeholder focus group content and findings

## G.1 Introduction

A focus group session was held with 14 stakeholders involved with the delivery, use or regulation of telecommunications on Thursday 23 October 2008 11:00 – 13:00 at the Temple of Peace in Cardiff. The session was divided into two parts. During the first part, two sub-groups were formed, one consisting of industry representatives and telecommunications operatives, the other consisting of local planning authorities and community groups. Attendees were given the task of selecting one of the five options for Part 24 that they felt, as a group, would be best for all stakeholders. The sub-groups were asked to feed back with any additional detail they felt was important for the chosen option, along with the reasons for their selection. For the second part, attendees were separated into three mixed groups. They were asked to agree on a way forward for Part 24 that they could all accept. It was made clear that all should be given the chance to speak and that no single person should dominate the decision. Groups were then asked to feed back, with specific reference to the degree of consensus reached. Janet Askew concluded the session by thanking the participants and noting that a further group session should be arranged by the Welsh Assembly Government after the UWE research project had been completed due to the potential for discussion options and assessing impacts. The findings of the session are detailed below.

## G.2 Focus group session: Part 1

Task

Choose one of the five options that would be best for all stakeholders. Refine and give more detail to the option if you feel necessary. Give reasons for selecting your chosen option

Group members

1 **Industry/operators**
Stuart Eke (MOA)
James Wild (T-mobile)
Leighton Jenkins (CBI)
Tom Powell ($O_2$)
Gareth Garner (Mobile Broadband Network Limited)
Brian Truman (Vodafone)

2 **LPA/community**
Kevin Philips (Planning officer, Carmarthen)
Gumbo Fortune (Planning officer, Newport)
Liz Wooley (Planning officer, Bridgend)
Phil Baxter (Planning officer, Swansea)
Lis Davies (GRAMM)
John Evans (Planning officer, Ceredigion)
Marcus Goldsworthy (Planning officer, Vale of Glamorgan)
Norman Jones (Planning officer, Torfaen)

Group feedback

Group 1 was divided as the community representative preferred option 1 and the local planning authorities option 2. The following detail was added: option 2 could also be represented on a spectrum based on what is specified as permitted development; there is a need for reference to context; technical knowledge may be limited in the local planning authority, therefore it is difficult to specify detailed changes to Part 24; there is a need for clarity on the health issue, as ICNIRP is the legal requirement but health can still be a material consideration, with the best solution possibly being to remove responsibility from the local planning authority entirely; there is conflicting advice in Part 24, TAN and the Code – the prior approval process considers only siting and design but health can be a material consideration; the cost of looking into health considerations may be large.

Reasons were given by Group 1 to justify their choices. The local planning authorities felt that option 1 would be too onerous due to workload implications, whereas the community representative felt this was better as the system would be more accountable. All agreed that removing the current 56 day prior approval process is necessary, as some refusals may be received too late to be counted. The local planning authorities preferred option 2 as the parameters would be more flexible. All agreed that option 3 would not be appropriate as there are too many issues with current legislation, suggesting that change is required; that option 4 would need constant rewriting due to technological change; that option 5 is undemocratic as health concerns would not be represented and there would be issues for operators being targeted. One local planning authority thought this may be an option as very few applications refused for their authority, and that all prior approval applications go through delegated powers and are rarely objected to. It was noted by group 1 that differences may exist between the local planning authorities due to the presence of local interest groups.

Group 2 agreed that option 4 would be the most appropriate option. The following detail was added: there is a need for 'plain English' as the current advice is not clear; the two-stage process of prior approval should be removed (remove need to ask if development requires PA first); the Code should be revised for consistency following any changes; any revision should encourage the use of existing structures (minimum visual impact); the cumulative impact of structures to be addressed; the requirement for full permission for shrouding needs changing (currently there is no incentive to disguise roof aerials); the requirement for full permission for antennas facing highways needs changing; there is a need for clarification required regarding minor amendments and discussions between local planning authorities and operators.

Reasons were given by the group 2 to justify their choices. The business representative noted that any amendments should not restrict further investment in infrastructure in Wales, particularly as telecommunications infrastructure and ICT is vital for the economic and social wellbeing of Wales in the future (for business and communities), and that consideration needs to be given to future evolution of technology and operators regarding what comes next. All agreed that community concerns regarding the health and safety of mobile phone masts would not be addressed by increasing planning controls (particularly as only a few are opposed on these grounds); that any restrictions need to be appropriate to the type and scale of the

development taking place, for example 'swap outs' and antenna in urban areas; that there would be workload implications if the PA process were to be removed; that the planning regime needs clarification; that option 5 would not be possible as some restriction is necessary to protect communities; that there is an issue with the 56 day process and the use of 'day 0', where applications are sometimes decided on the 57th day. It was questioned by all if a move to full planning would improve the quality if decision making

It was noted that both group 1 and 2 required clarification and simplification of the process, also addressing the anomalies that exist regarding current legislation as set out in Part 24.

### G.3 Focus group session: Part 2

Task

Agree on a way forward selecting an option that you could all accept.
Rules: do not try to persuade others, give everyone a chance to speak

Group members

1 Stuart Eke (MOA)
James Wild (T-mobile)
Kevin Philips (Planning officer, Carmarthen)
Gumbo Fortune (Planning officer, Newport)
Lis Davies (GRAMM)

2 Leighton Jenkins (CBI)
Brian Truman (Vodafone)
Liz Wooley (Planning officer, Bridgend)
Phil Baxter (Planning officer, Swansea)

3 Tom Powell ($O_2$)
Gareth Garner (Mobile Broadband Network Limited)
John Evans (Planning officer, Ceredigion)
Marcus Goldsworthy (Planning officer, Vale of Glamorgan)
Norman Jones (Planning officer, Torfaen)

Group feedback

Group 1 did not reach agreement. They provided suggestions for further consideration: the 56 day prior approval could be extended to allow for other considerations, taking into account the planning committee cycle; that material health concerns should be removed, in order that they could be dealt with at the national level; that decisions should involve community, Government and local authority to work together and provide guidance. It was noted that planners do not have the experience or expertise to deal with health considerations. The community representative had a different opinion regarding health considerations, believing that

planning legislation should include health considerations as they would be difficult to include elsewhere. It was noted that Health Protection Agency (HPA) information may be out of date and as a government-funded agency, there is a question regarding their ability to pay sufficient consideration to health concerns.

Group 2 reached partial agreement and it was noted that the views of the different stakeholders were not 'poles apart'. All believed permitted development is appropriate in order to balance environment/infrastructure/economic/social considerations. It was noted that there are common misconceptions about the current prior approval process by planners, communities and Members. Suggestions for improvement included: address through education, clarity, revised best practice (including the Code); local planning authorities should have a dedicated telecoms officer; applications by operators should contain less technical jargon to make it easier for LPA to interpret (and perhaps include this recommendation in the Code). They noted that currently health can be a material consideration but suggested this should either be removed or it should be clearer exactly what can be a material consideration (clarify, educate). Disagreement arose regarding the prior approval process. The operators felt that the process with the 56 day period should be retained. They reasoned that in order to plan and roll-out a national network, certainty of decision-making is required for delivery, timings and network coverage (local planning authorities look at sites individually, operators see a network of sites). The local planning authorities felt that retaining the 56 day prior approval would continue to cause issues: there is an extra burden regarding meeting the 56 days and there is a chance that time may run out before the LPA is able to refuse an application; the planning committee cycle is monthly and therefore can be out of sync with the system; there is a community perception that their issues are not considered in the current PA process. The CBI noted that the economic perspective should be considered, and that extending the 56 day period would not be welcomed by business, where plans are made well in advance. All questioned if changing the 56 day period would help solve current issues.

Group 3 reached partial agreement, noting that the current prior approval process is problematic, but they were divided on whether or not the prior approval process should be retained. They all believed there is a need for very clear guidance in Part 24 on what is permitted development: parameters, heights, dimensions etc. It was noted that if any changes were made to the current legislation, all Welsh guidance (Code, TAN) would need changing in order to ensure consistency throughout and alignment with Part 24. It was felt that health should be removed as a consideration from Part 24 (but it should still be referenced) and that there is a need to avoid duplication regarding who considers health (local planning authority, HPA etc), perhaps by making an appropriate body a statutory consultee (suggestions included Ofcom and HPA). The group expressed concerns regarding what would actually be permitted developed if the prior approval process was removed, suggesting that there is possibility for further amendments regarding sizes, mast sharing, antennas, roof regulations etc. The group raised the potential for two new options: option '6' - Remove PA, create a new set of PD rights; and option '7' - Retain PA but remove the two stage process that currently exists, create a new set of PD rights.

## Appendix H Telecommunications and emerging technologies

### H.1 Introduction to wireless networks

In recent years there has been a proliferation of wireless networks offering a variety of connection, capacity and coverage needs. The first to be deployed were broadcast wireless networks for radio and then television services. Today wireless is used for computer communication (WLAN), phone communication (cellular networks) device communication (Bluetooth for Cameras, games consoles and phones), remote sensor communication (Zigbee), mobile phone communication, smart cards (Near Field Communication [NFC]) and even small identification tags (RFID tags). What distinguishes Broadcast (Radio and TV) and mobile phone networks from the others is that they require a national network of radio base stations, masts and antennas.

### H.2 Cellular networks

Mobile phones transmit and receive voice calls and data using radio signals. Connection is made via antennas to base stations. Each base station and its antennas cover a geographical region called a cell. A cell site is the name given to the location where the base station and all its telecommunication equipment including antennas and mast are sited. It is at this point where connections are made to the operator's network, other mobile networks, telephone network and Internet. When the mobile user moves to the edge of a cell, as illustrated in figure H.1, handover occurs with the adjacent cell and base station. As long as there is overlap between cells mobile services will seamlessly continue from the adjacent base station.

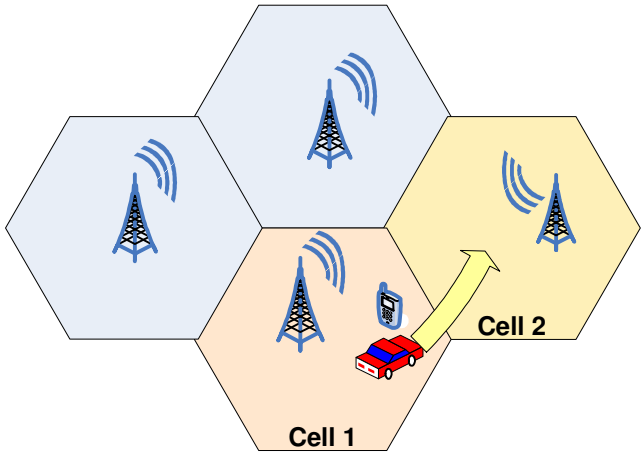


**Figure H.1** Cell handover
*Source: Mishra (2004)*

For national coverage base stations must be located across the country providing a complete cellular layout of partially overlapping cells.

Cell shapes and cellular layout are often depicted artificially as shown in figure H.1 but in a perfect environment, that of free space, radio waves would emanate in a radial manner. A slight overlap between cells in this perfect environment would constitute an ideal cellular layout. In practice because of hills, buildings and vegetation which

block radio transmissions the cell shapes are more like those shown in figure H.2 under the caption of “in practice”.

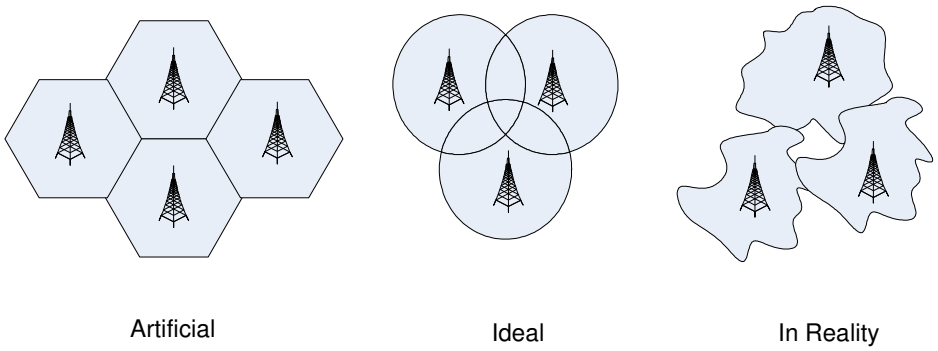


**Figure H.2** Cell shapes
*Source: Mishra (2004)*

The main goal of cellular network planning is to provide the required coverage with minimum of cell sites. This requirement may be met even though in some places there may be no coverage.

Besides coverage another main issue when planning, deploying and managing a wireless network is capacity. The capacity of a cell determines how many simultaneous voice calls and internet sessions can be supported. Cell capacity is planned to cope with estimated peak time demand which varies with location. Mobile networks are continually evolving and now consider multimedia broadband services as important as voice calls. Even though UK mobile device ownership has reached saturation point user data traffic is steadily increasing. For example network operators are reporting that introduction of the iPhone has caused monthly user traffic to roughly double (Walker, 2008). This mobile evolution necessitates continuous cell capacity increases. Network operators plan for this expansion at the outset by over provision but eventually capacity must be increased. The first step is to try to meet the extra capacity demand using new radio technology wherever possible. Eventually new cell sites will have to be added to the network where most needed. One of the advantages of increasing the number of cells is that the average transmission power between mobile and base station will be reduced because of the smaller distance between the two. Cell capacity can be increased by improving spectral efficiency of traffic transmission and reception. Spectral efficiency is measured in bits per second per Hertz per cell. In other words what throughput can the mobile get in bits per second based on the frequency of transmission of the network. Telecommunication engineers and researchers are continually striving to improve efficiency and throughput.

## H.3 Types of cellular network (GSM, GPRS, Edge, UMTS, TETRA)

Innovative techniques lead to new radio technology designs and new types of mobile networks. This is characterised by the evolution of the Global Systems Mobile (GSM) /Universal Mobile Telecommunication System (UMTS) family of mobile cellular networks. This family of networks serves more than 80% of the world’s mobile users and is the technology used in UK and Europe. GSM was rolled out in the mid 1990s

offering digital communication services, it was enhanced to provide internet packet services with GPRS and further enhanced to provide higher throughput with EDGE. A completely new but GSM compatible mobile network 3G UMTS was launched at the end of the 1990's with a new WCDMA air interface operating at a different frequency of the radio spectrum and providing higher data rates. Currently standards committees are working on the next generation of cellular network called LTE (Long Term Evolution). The cellular evolutionary milestones just described are often referred to as 2G, 2.5G, 2.75G, 3G and 4G. As far as the user is concerned the mobile device has evolved from a phone to a mobile broadband internet computer that can make voice calls, video calls and more. In the UK there are five GSM family cellular networks deployed and managed by T-Mobile, Hutchison 3G, FT Orange, O2 and Vodafone.

Another distinct type of cellular network technology deployed across UK and Europe is TETRA (Terrestrial Trunked Radio). The standards and specifications for this cellular technology is defined and developed by the European Telecommunications Standards Institute (ETSI) who is a member of 3GPP. The TETRA network has been specifically designed to serve the needs of public and government safety organisations such as police, ambulance and fire services. As with the GSM family of cellular networks TETRA technology is constantly evolving to meet future needs. In the UK the public safety network service is operated, managed and owned by Airwave Solutions Ltd. The network can only be used by the emergency services and is not for general commercial use. It is up to the UK regulatory authorities as to who has access to this service.

## H.4 Cellular network planning

Coverage and capacity are two main issues when planning a cellular network. The most common way is to provide coverage from tower based antennas. The coverage depends on geography but GSM base stations can reach out as far as 35Km. Cells of this type are referred to as macro cells. The radio waves can penetrate buildings by bending round doorways and windows through the processes of diffraction and refraction. Quite often this provides sufficient in-building coverage and capacity. However in many cases particularly in urban areas capacity, coverage and or quality is not sufficient. In these situations the solution is to use in building base stations that strategically cover selected areas usually high mobile traffic places known as "hot spots". Another option is to locate a macro base station in the basement of a building attached to a coaxial cable that links to antennas on all floors (see figure H.3) or in a metro station with a similar arrangement of antennas at intervals along the metro tunnels.

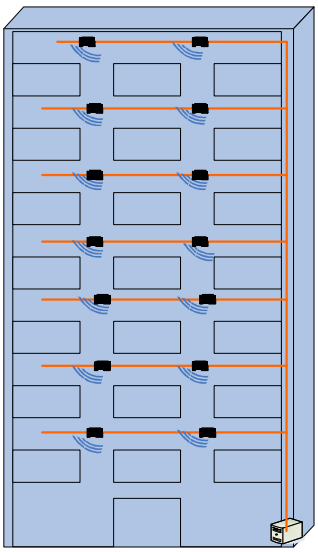

**Figure H.3** In-building macro cell and radio base station
*Source: Mishra (2004)*

Other common locations are train stations, airports, university campuses and shopping malls. The capacity handling of these macro cells can be equal to that of those sited on towers with mast antennas.

A mid sized version is the Micro cell covering smaller dense urban areas. In contrast to macro cells antenna for micro cells will usually be located below roof top level. Micro radio base stations have a small footprint, can be mounted on walls and easily disguised as a sign or part of the building architecture. Micro base stations can also be located in high capacity areas where no equipment room is available and space is limited. Distributed antennas can also be connected by coaxial cable allowing complete indoor coverage for medium sized buildings and difficult topological structures.

The next smallest area of coverage is the pico cell, served by a pico radio base station which usually has an integrated antenna but can be connected to a distributed antenna array. Typically it has low output power of a few hundred milli-Watts suitable for smaller buildings or parts of buildings and smaller organisations. Finally a fairly recent development is the introduction of an even smaller cell called a Femtocell served by a very low powered small base station that can be installed in the home by users. The connection back to the core network is normally via wire line broadband ADSL.

Using these different types of radio base stations national coverage and capacity needs can be provisioned. Although presenting useful solutions the smaller cell types cannot replace the need for macro cells with masts and towers. The coverage that these and all base station types provide depends on the height of the antenna. The higher the antennas the larger the area covered and the potential for more connectivity with other cells. However this can lead to more interference between sites particularly with GSM networks.

Coverage and capacity problems also depend on the type of cellular network. In general GSM cells cover a larger area than UMTS cells because the carrier frequency used in GSM is lower. This is because radio waves the higher the operating frequency the shorter the propagation distance. Consequently more UMTS than GSM base stations will be required to cover a similar area. The European Commission has agreed that the GSM 900MHz and GSM 1800MHz bands will be approved for 3G (UMTS) 900/1800 use, and programmes are underway to achieve this. If implemented by operators, this should result in fewer base stations than would be needed otherwise. 3G networks are deployed in the same areas where 2G networks exist and are able to use some of the existing 2G cell-sites and facilities.

A particular feature of GSM is that to avoid interference nearest neighbour cells must transmit with different carrier frequencies. In the case of many small cells located close together allocating different operating frequencies to all adjacent cells with only a limited set of frequencies to use is a difficult problem. A distinguishing feature of UMTS is that coverage and capacity are more dependent on each other compared with GSM. This means that as the data and communication traffic increases within a cell then the area of coverage decreases. Conversely as the cell traffic decreases the coverage area increases. This phenomenon is known as cell breathing.

Cellular network planning with TETRA is slightly different in that the process is coverage driven rather than capacity driven. The number of emergency service users will always be much lower than the mobile phone user population but must be accessible from wherever emergency crews might operate; which is everywhere. It is expected that coverage will exist in remote rural areas as well as deep inside buildings. This means an increase in radio base stations to ensure cell overlap at all times. The high capacity Pico and micro cell solutions are rarely required in TETRA networks. Unlike the GSM network family traffic load is more evenly distributed over a 24 hour period and does not exhibit busy hours. Nonetheless when an emergency incident occurs the network must cope with the increase in traffic demand

## H.5 Cell sites

Cell sites are the major cost in deployment and management of cellular networks. The sites themselves have to be purchased or rented. Tower companies rent prime sites particularly for macro cells, such as water towers, building tops or locations along motorways. In building macro distributed array antennas may also be owned by other enterprises or organisations. The number of base stations in Wales, of all types, as recorded by Ofcom in April 2008 is shown in Table H.1.

| Base Station Numbers: Single Technology or Single Operator | | | |
|---|---|---|---|
| GSM | TETRA | UMTS | Shared |
| 1418 | 270 | 342 | 544 |

**Table H.1** Number of base stations in Wales (April 2008)
*Source: Ofcom, 2008a*

Connection of the cell to the core network from sites requires wired, microwave or if possible optical fibre connection. The backhaul, as it is known, is a particular problem

in rural areas where cable connections are less dense. In cities fibre optic cable connections are becoming more available. In the cases where cable connections are not available then line of site microwave connections are used. Microwave dishes will have to be located at high points in the landscape sufficient to bridge the line of sight distance to a core network connection point. These backhaul communication links are leased from telecommunication companies such as British Telecom. All these factors further increase the costs associated with a cell site. Consequently when mobile communication limit is reached in an individual cell or group of cells the first course of action is to find a technology solution to increase capacity. Adding sites is very costly and only done when essential. Adding in-building macro cells or micro and pico cells can offload traffic and postpone investment in the macro cellular network.

Technically it is possible to share almost any part of the mobile network infrastructure. Typically network operators share a physical site such as a tower or the top of a building. The motivation for this is simply because there is a limited supply of such locations and it reduces build, planning time and cost. Mast sharing upon which antennas can be fixed is also common. Site sharing, obliged by regulation, is one way of reducing costs and also reducing the number of masts. For example UK mobile operators Vodafone and FT Orange announced this year a plan to share mast sites. Radio base station equipment will be co-located at sites and will include both GSM and 3G coverage. The prediction is that they will be able to cut cell sites numbers by 15 per cent which will equate to 3,000 fewer masts.

Radio interference is a limiting factor as to how many can share and operators may experience future complications when attempting to deploy new radio technologies. Third party telecommunication infrastructure providers, such as Arqiva and National Grid Wireless, have a portfolio of sites to rent and lease. In all these cases each operator provides and manages its individual cells, coverage and capacity. In general it is more difficult to site share with a network that is more or less fully deployed such as the case with GSM. There is more possibility with UMTS in rural areas where coverage is not complete and certainly for future networks such as LTE.

Network roaming can also be considered as sharing where operators agree that a mobile subscriber of one network may use the mobile network of another to make connection. Therefore in situations where a subscriber's home network does not provide adequate coverage connection to the second operator's network is used.

A further possibility is sharing of the complete radio access network that is radio base station, antennas and backhaul connection by two or more operators. For competitive operators this might appear out of the question but when considering the costs of the 3G licenses and the expense of rolling out a new network it is a commercially attractive proposition. T-Mobile UK and Hutchison 3 UK are in the process of doing this and have formed a joint company called MBNL (Mobile Broadband Network Ltd.). This joint venture will not only help accelerate 3G coverage but will also provide HSDPA broadband coverage. Each operator will retain responsibility for the delivery of services to their respective customers and use their own frequency spectrum and core network. It is expected that equipment at most of the operators' sites in the UK will be replaced allowing about a 30% reduction in total number of sites. It is Nokia Siemens Networks Multi-operator Radio Access Network (MORAN) that will allow the radio access network to be shared but at the same time allowing the

network operators to function independently. It can be expected that given the right circumstances other operators may well follow this example. This type of solution is not confined to macro base stations the distributed antenna systems used with the in-building base stations can serve one or several operators with GSM or UMTS or both and in some cases TETRA and WLAN as well.

The final possibility is to share core network infrastructure that is all the routers, management servers and equipment that connects all the radio base stations together. This infrastructure supports delivery of mobile applications, ancillary services such as billing together with management services for subscriber, security, network and quality. How or indeed whether this type of sharing could work in practice is still very much a matter of debate.

Depending on the complexity involved some options are more commercially attractive than others. There is European and UK competition laws and licensing spectrum agreement issues involved in infrastructure sharing. Regulations differ from country to country but the major concern is that sharing might prevent fair competition in the mobile market to the detriment of the subscriber. The relevant authorities grant approval based on examination of the positive environmental and consumer benefits aspects accrued by sharing against the possible negative aspects. For example during the UK rollout of 3G there were many examples of permitted infrastructure sharing based on the assertion that it would quicken national coverage particularly in rural areas. Many of the sharing approvals are time limited.

## H.6 Emerging wireless technologies

The GSM-UMTS family of mobile networks is continuously evolving with a roadmap of new technologies and techniques being regularly introduced. The 3rd Generation Partnership (3GPP) is a collaboration of standards bodies from around the world that is responsible for the specification of these technologies. The specifications are updated and frozen as a release version. Each release describes the requirements, features, architectures and interfaces of all parts of the mobile network system from user handset (mobile device) though radio access network to core network and services. The first set of specifications was Release 99 frozen in the first part of the year 2000 which specified the first version of UMTS with the WCDMA air interface. Release number 99 was chosen to indicate the year of publication but it appeared in 2000. Subsequent releases start from Release 4. In this release the major new introduction was an internet IP core network. In Release 5 frozen in 2002 a major new feature was the Internet Multimedia System (IMS) which provides for the management and delivery of audio and video streams. This subsystem plays a major role in the provision of an integrated architecture combining broadcast (TV and Radio), IP and mobile networks. In the same release High Speed Downlink Packet Access (HSDPA) enhanced support for data services providing possible down link through to the mobile of 14 Mbps. In 2004 Release 6 specified a corresponding enhanced uplink called High Speed Uplink Packet Access (HSUPA) allowing mobiles to upload at maximum throughput of 5.8 Mbps. Also in the same release a Multicast Broadcast Multimedia Service (MBMS) was specified. The significance of this is that until this time communication between mobiles had been one to one as in a traditional telephone call. The MBMS service enables multimedia group or broadcast communication to and between mobile users.

In Release 7 (2007) HSDPA and HSUPA EUL were combined with multiple antenna and modulation techniques and called High Speed Packet Access (HSPA). This increased the performance of HSPA to support data rates of up to 42Mbps in the downlink and 11.5Mbps in the uplink. This capability has put mobiles firmly in the broadband communication category.

Long Term Evolution (LTE) currently being defined in 3GPP Release 8 will herald another major step forward in mobile communications. LTE defines a new air interface together with advanced antenna technologies. It uses Orthogonal Frequency Division Multiplexing (OFDM), a well established technology used in other wireless networks, in the down link. Alongside this a new network architecture called Standard Architecture Evolution (SAE) is also being defined. This architecture has been designed to support IP based services. LTE–SAE is regarded as an example of 4G technology. Antenna solutions developed in High Speed Packet Access (HSPA) will be used by LTE to improve data rates, coverage and capacity. The requirement is that it should provide downlink peak rates of at least 100Mbit/s and up to 200Mbit/s. LTE–SAE has been designed to interoperate with the family of GSM-UMTS networks supporting hand-over and roaming and to be easily deployed alongside existing cell sites. It is expected that not only mobile phones but other consumer devices such as laptops, cameras, camcorders and games consoles will be LTE enabled allowing mobile broadband connection rates.

As digital and network convergence progresses other types of wireless networks are emerging. The IEEE 802.16 Working Group has developed a family of air interface standards designed to develop wireless broadband for metropolitan areas commonly known as WiMAX. The work on 802.16 started in 1998 and at that time the focus was on developing line of sight (LOS) point to multipoint wireless broadband systems for use with fixed terminal providing a range up to 50 km. The early version of this standard provided fixed broadband wireless to end terminals. However amendments to the standard documented in IEEE 802.16e called Mobile WiMAX, now allows for mobility of terminals and non line of sight coverage with range of the order 6 – 8 km. The WiMAX Forum defines network architecture specifications for WiMAX networks. The first specification (Release 1.0) focuses on delivering Internet services with mobility. There are and will be future deployments of WiMAX and Mobile WiMAX in the UK but its depth of penetration into the wireless market both fixed and mobile is still uncertain.

HSPA and Mobile WiMAX are comparable employing many of the same techniques. Peak data rates and spectral efficiency performance is also similar so there is no clear technology advantage in this respect. A major disadvantage for WiMAX is that it does require considerable network deployment investment. In contrast 3G infrastructure is almost fully rolled out with clear upgrade paths for HSPA and LTE. Because of this enormous investment, deployment of WiMAX is likely to run into some opposition from established mobile operators. A further disadvantage with WiMAX is the availability of spectrum particularly for mobility. However in the UK the telecoms regulator Ofcom has announced that it will amend the WiMAX spectrum license of UK Broadband to allow for the provision of mobility and higher power levels in the 3.4 ~ 3.6 GHz band so that the company can deploy mobile WiMAX. This decision

by Ofcom is significant and paves the way for other European regulators to follow suit.

As is often the case when a new competitive technology emerges it is initially viewed as a threat but quite often after a period of time equilibrium is reached where the technologies coexist and compliment each other. Certainly fixed WiMAX offers fixed broadband everywhere and is an especially good solution in rural areas where ADSL may not reach. WiMAX could also be used as a solution to the backhaul problem in GSM family of mobile networks. Just as many mobile devices have WLAN air interfaces and offer interoperability with the GSM family of wireless networks so this could happen with Mobile WiMAX. 3GPP already have study items on interoperability between the two technologies and the first WiMAX - HSPA mobile devices have been launched. So there is still the possibility of a future with both types of network existing alongside each other with the ability to switch between networks depending on whichever technology is the best in a given set of circumstances.

Telecommunication convergence of mobile phone networks, broadcast networks( TV and Radio) and Internet Protocol (IP) computer networks towards a common digital IP base has seen the emergence of technologies suited to several communication domains. An example from the broadcasting domain is DVB-H (Digital Video Broadcasting – Transmission for Handheld terminals) which brings TV to the mobile phone. DVB-H is derived from the DVB-T the specification for digital terrestrial television which is used for the delivery of the Freeview service in the UK. DVB-H has a number of features designed to take account of the limited battery life and the particular environments in which handheld devices must operate. The European Union has endorsed the DVB-H standard as the proffered choice of mobile TV technology although this, at the moment, is only a recommendation.

DVB-H services have been designed to be multiplexed and transmitted across a terrestrial digital broadcast network (DVB-T). DVB-T was designed to conform to previous TV network planning principles where transmitters are high power, far between and the home user has a rooftop aerial in line of sight of the transmitter. Unfortunately DVB-H enabled mobile devices have low gain small antennas, are usually used at lower elevations with no line of site to the transmitter, and are in motion and often inside buildings. In DVB-H trials capacity can be shared with DVB-T but for national coverage a separate network of a large number of transmitters is required. In more open or rural areas higher output powers and taller antenna masts are possible but will still be much smaller than those of the main DVB-T sites. The obvious solution is to co-locate the low-power DVB-H transmitters with cellular base stations sites. Although the network technologies are very different infrastructure such as power, masts, connectivity can be shared to reduce costs. Trials have been conducted in the UK but although the standard is complete, network equipment and DVB-H devices available, there are only six full deployments of this network in Europe three of them in Italy. There are other contenders for mobile broadcast delivery. MBMS (Multimedia Broadcast Multicast Service) is a 3GPP service designed to deliver broadcast services over the GSM family of networks. DAB-IP is the IP extension to the DAB standard, which allows an IP data-casting layer (for mobile TV) on top of the existing DAB layer and T-DMB is another technology, based on the DAB standard. QUALCOMM MediaFlo$^{TM}$ is a technology developed by QUALCOMM.

Another recent wireless development is the femto-cell. With the increased mobile device computing capacity, capability and potential broadband connection rates it is becoming clear that users need to be seated or stationary to use some of the more sophisticated services on a mobile device. The home is one place where users spend time and can make full use of increased capacity and coverage supplied by a Femtocell. This compact device provides the functionality of a low power 3G mobile base station with broadband DSL modem connection. The main target of this device is the home so when a phone is in range of the femtocell it will use this in preference to out door base stations. Making calls and using mobile devices will be exactly the same except that voice and data will go though the DSL broadband link back to the operator's network. The devices will be able to handle three or four simultaneous calls enough to meet a family of mobile users. The devices will be sold in conjunction with network operators since they use licensed spectrum. The femtocell will appear to a 3G mobile device as just another base station belonging to the host operator even users from other countries (roaming) will be able to connect. Rather than hundreds of base stations in a given geographic region, the femtocell model calls for hundreds of thousands of smaller, cheaper base stations in a similar footprint. This introduces challenges to the traditional models for management and control of base stations. With the home market femtocells need to be plug-and-play devices that connect automatically to the operator's network without a lot of complicated steps and procedures. Furthermore, terminating sessions from the vast number of femtocells will require high capacity access service gateways. These devices will need to manage and control interactions between the femtocells and the wireless network infrastructure. Femtocells have caught the imagination of network operators and there are a number of trials. Certainly they may be attractive to users with poor 3G home coverage particularly in rural areas. An interesting point here is that it is the subscriber that solves the coverage and capacity problem.

## H.7 Future trends in wireless networks

Predicting future technology trends is always difficult since peculiar disruptions can often occur. Consider for example the Athens Wireless Mobile Network[*]. Here a complete wireless community network using WLAN and unlicensed spectrum has grown to over 2300 nodes providing a metropolitan network to its users. In this mesh network anyone can be an operator and hang an antenna out of a window. Its growth is mainly due to the poor availability of ADSL broadband. FON[†] is a company which coordinates and manages unlicensed networks around the world.

The most striking forecast is not the increase in radio base stations and masts but proliferation in number and density of small wireless devices. Wireless communication capability is being added to more and more everyday objects. Network connectivity is becoming ubiquitous linking devices as small as paperclip and as large as a city transportation system. The combination of being able to have wireless communication, computing power and sensors all on a small object is leading to the creation of new 'intelligent' artefacts. WWRF predict that by 2017 seven billion users will have seven trillion mobile wireless devices. Other reports suggest that there will be of the order of $10^{14}$ products $10^{12}$ smart objects all with wireless connectivity

[*] www.awmn.net
[†] www.fon.com

by a similar date. Connecting all these devices and objects together has stimulated research into the evolution of the Internet towards an Internet of things. The vision of both Ubiquitous Computing (Kwiatkowska, 2008) and Future Internet is the interconnection of these artefacts, which are embedded in our real environment, towards a society of "intelligent things". The view is that it will lead to a world augmented by computational artefacts capable of understanding and responding to human activities. A grand challenge in European and UK research is how to build and design systems out of these artefacts that might assist living, optimise our daily activities and help reduce our ecological footprint. The key point is that it is miniaturisation of wireless communication between these artefacts that is underpinning and driving this technology revolution.

## H.8 Implications for planning law

Wireless and cellular networks experience a constant cycle of both business and technology innovation and evolution. It is clear that technology evolution will see continuous installation of new types of antennas, radio base stations and the rollout of new types of networks. This will not necessarily mean a large increase in the number of mast cell sites. The almost complete deployment of GSM and near completion of 3G has secured cell sites for reasonable coverage for these and future emerging wireless technologies. The costs of establishing a new site together with continuous management of cell sites is a major cost for operators. Consequently there will always be some reluctance to expand site numbers unless it is essential. Customers expect good quality mobile services anywhere anytime. To experience these satisfaction levels for new types of services requires deployment of infrastructure fairly quickly throughout the country. This is a large expenditure outlay well before revenues accrue from the service. This motivates operators, as we are observing in the UK, to share sites and equipment. This current round of sharing is driven by the need to complete 3G coverage and offer mobile broadband. It is predicted that this will significantly reduce the number of cell sites and antennas in the UK. Operators are in a competitive business and these sharing agreements are time bounded so at some time in the future sharing agreements could cease. It must also be recognised, whether there is an increase or reduction of sites, that as technology evolves new types of antennas and base stations will be continuously deployed bringing new services to customers. This will occur not only with the GSM family of technologies but other new wireless technologies; WiMAX, DVB-H (mobile TV), DAB (digital radio) and digital TV (DVB-T) being examples. Digital TV switchover in Wales is 2009.

Another factor that will impact the total number of cell sites is the greater use of micro cells and pico cells to offload capacity from macro cells. This will inevitably lead to an increase of radio base stations but they are much smaller and in most cases unobtrusive. The important point is that larger macro cell sites with masts and antennas are still essential. If or rather when femtocells take off there will be a very large increase in population of radio base stations but they will be indoors and only the size of a modem. This underlines the main conclusion that it will be the colossal increase of small wireless devices and wireless enabled artefacts with very small antennas that will be most striking over the next two decades. This does pose the question how much extra macro cell site provision will be required to connect them back to managing centres.

The most important message from the electronic communications code operators to planners is that there will always be a continuous cycle of new technologies and upgrading of wireless antennas and base station equipment. There will be a large increase in smaller micro, pico and femto base stations, some of which (de minimis) are outside the scope of planning regulations considered here. The number of macro base stations for Mobile & TV/Radio broadcast is almost sufficient. There will be phases of increase in new macro base sites as well as contraction of operational sites when new wireless technologies are deployed that have reduced coverage. Coverage is a function of Radio frequency.